



SECOND SOUTH PACIFIC CONFERENCE  
ON NATIONAL PARKS AND RESERVES

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SYDNEY AUSTRALIA 1979

SECOND SOUTH PACIFIC CONFERENCE ON  
NATIONAL PARKS AND RESERVES - SYDNEY, AUSTRALIA, 1979

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AGENDA

Tuesday, 24th April, 1979

- 9.00 a.m. Welcome to Conference and Opening Address by  
The Hon. D.P. Landa, LL.B., M.L.C., Minister for  
Planning and Environment, New South Wales.
- 9.30 a.m. 1. Apologies.  
2. Introductions.  
3. Settlement of procedural matters:-  
(a) Confirmation of agenda  
(b) Recommendations Committee  
(c) Question of News media releases
- 10.00 a.m. Situation Reports (Delegation Leaders).
- 10.30 a.m. Morning Tea.
- 11.00 a.m. Situation Reports.
- 12.30 p.m. Lunch.
- 2.00 p.m. "Man in the South Pacific - Past and Present"  
by Senator The Hon. J.J. Webster, Minister  
for Science and the Environment, Australia.
- 3.15 p.m. Afternoon Tea.
- 3.45 p.m. "Parks, Reserves and Traditional Communities"  
by The Hon. P. Kakarya, Minister for  
Environment and Conservation, Papua New Guinea.
- 5.00 p.m. Session closes.

Thursday, 26th April, 1979

- 9.00 a.m. Situation Reports (Delegation Leaders).
- 10.30 a.m. Morning Tea.
- 11.00 a.m. "The Importance of Islands as Reserves"  
by The Hon. V. Young, Minister for Lands,  
New Zealand.
- 12.30 p.m. Lunch.
- 2.00 p.m. "The Coastal Ecosystem - Man's Impact"  
by The Hon. I. Bajpai, Minister for  
Social Welfare, Fiji.
- 3.15 p.m. Afternoon Tea.
- 3.45 p.m. "Development and Management of Marine Parks  
and Reserves in the Kingdom of Tonga"  
by Mr. S.L. Tongilava, Superintendent of  
Lands, Surveys and Natural Resources, Tonga.
- 5.00 p.m. Session closes.

AGENDA (cont.)Friday, 27th April, 1979

- 9.00 a.m. "The Problems of Creating Public Awareness" -  
(panel session).
- 10.15 a.m. Morning Tea.
- 10.45 a.m. "Man in the South Pacific - The Future" -  
a selective synthesis of the work of the  
Conference with some personal viewpoints  
by Dr. R.F. Dasmann, representative of  
the International Union for the Conservation  
of Nature and Natural Resources.
- 12.15 p.m. Lunch.
- 1.45 p.m. General Business and Report of Recommendations  
Committee.
- 3.15 p.m. Afternoon Tea.
- 3.45 p.m. Report of Recommendations Committee (continued  
if necessary), followed by Closing Ceremony.
- 5.00 p.m. Conference concludes.
-

SITUATION REPORT - AUSTRALIAPREAMBLE

Australia comprises an area of 7,682,300 square kilometres. Bounded on the west and east by the Indian and Pacific Oceans respectively, it lies between longitudes 113° 9' East and 153° 39' East, while its northern and southern limits are the parallels of latitude 10° 41' South and 43° 39' South. To its north are the Timor and Arafura Seas and Torres Strait; to its south is the Southern Ocean. Nearly 39 per cent of the total area of Australia lies north of the Tropic of Capricorn.

Australia's large area which spans several climatic zones combined with a variety of soil, topography, and human influence has produced a diversity of landscapes. Because of the isolation of the island continent many of these landscapes and their associated flora and fauna are unique and of great national and international significance.

GEOGRAPHY

A transect through the Australian continent from east to west at its greatest breadth, would show a narrow easterly belt of coastal plain. This plain, extending north and south along the whole east coast, is well watered by rivers. It is of variable width, seldom more than one hundred kilometres, and occasionally only a few kilometres. Bordering the western margin of this plain is the Great Dividing Range, which extends from the north of Queensland to the south of New South Wales, and thence one branch sweeps westward towards the boundary of Victoria and South Australia, and the other, the main branch, terminates in Tasmania. This range, which often arises abruptly from the plain, frequently presents steep escarpments on its eastern face, but the descent on its western slopes is gradual, until, in the country to the north of Spencers Gulf, South Australia, the inland plain is below sea-level in some places. Thence there is another almost imperceptible rise until the mountain ranges of Western Australia are reached, and beyond these lies another coastal plain.

The mountains of Australia are relatively low, the highest peak, Mount Kosciusko, in New South Wales, being only about 2,225 metres. Three-quarters of the land-mass of Australia lies between 180 and 450 metres contours and forms a huge plateau.

A great variety of landscapes is present from the enormous flat plains of the Nullarbor to the rugged wilderness of south-west Tasmania.

CLIMATE

Australia is the world's driest continent, nearly 60 per cent of the country receives an average annual rainfall of less than 380 mm. Troudoninna in South Australia has the lowest average rainfall of only 105 mm. In the south-east, the east coast and the south-west, the precipitation is much greater with Tully in coastal north Queensland having an annual average of 4,500 mm. and Lake Margaret, Tasmania, 3700 mm. The rainfall tends to be extremely variable varying both within a year and from year to year. Substantial falls of rain occur occasionally in the driest parts of the country.

During January average maximum temperatures exceed 35° C over much of the interior. July is the coldest month with regular frosts being recorded in the higher regions of southern Australia, and extensive snow falls over large areas above 1,370 metres altitude.

Most of the continent receives more than 3,000 hours of sunshine each year and in central Australia, totals in excess of 3,500 hours occur. A minimum of approximately 1,750 hours of sunshine occurs on the west coast and highlands of Tasmania.

## POPULATION

Australia's population now exceeds 14¼ million and is expected to be about 18 million by the turn of the century.

The population is concentrated mainly in the south-eastern part of the continent with a smaller concentration in the south-west. About 85 per cent of the people live in urban areas with 45 per cent concentrated in the two larger cities of Sydney and Melbourne.

## POLICY

The Australian Governments (Commonwealth, State and Territory) are protecting examples of Australia's unique flora and fauna in a comprehensive system of national parks and equivalent reserves. The national parks are seen as important for recreation and other purposes such as research, education and water catchments.

In the international sphere Australia is actively co-operating with the United Nations, the Organisation for Economic Co-operation and Development, and the International Union for the Conservation of Natural Resources. Intergovernmental conventions relating to nature conservation, cultural and environmental protection are also seen as an important method of fostering comprehensive environmental policies and practices.

Australia has signed a number of international agreements for nature conservation. These include :-

- ( i ) The Convention on Wetlands of International Importance especially as Waterfowl Habitat.
- ( ii ) The Agreement between the Government of Japan and the Government of Australia for the protection of Migratory Birds and Birds in Danger of Extinction.
- ( iii ) The Convention on International Trade in Endangered Species of Wild Fauna and Flora.
- ( iv ) The UNESCO Convention for the Protection of the World Cultural and Natural Heritage.
- ( v ) The Convention for the Conservation of Antarctic Seals.

Australia has decided to become a party to the Convention on Conservation of Nature in the South Pacific and is involved in the development of the Draft Convention on the Conservation of Migratory Species of Wild Animals and the Draft Convention for the Conservation of Antarctic Marine Living Resources.

## NATURE CONSERVATION LEGISLATION

The National Parks and Wildlife Conservation Act 1975 and the Amendment Act 1978 provide the legislative basis for Commonwealth Government activities in nature conservation.

The Amendment Act takes account of the Government's decision with regard to the establishment, planning and management of the Kakadu National Park in the Alligator Rivers Region in the Northern Territory.

Other Commonwealth legislation relating to nature conservation includes the States Grants (Nature Conservation) Act 1974 under which funds are made available to States for acquisition of land for nature conservation purposes, the Environmental Protection (Impact of Proposals) Act 1974 which requires that environmental impact statements are provided for proposals involving Commonwealth Government funding or constitutional



NATURE CONSERVATION LEGISLATION (contd)

powers, and the Great Barrier Reef Marine Park Act 1975 which provides for the establishment, control, care and development of a marine park in the Great Barrier Reef Region.

AREAS RESERVED

More than 26 million hectares have been set aside in Australia for parks, reserves and other types of refuges and sanctuaries under State and Commonwealth legislation. This figure represents about 3.3% of Australia's total land area.

Each State and Territory classifies parks and reserves according to their own requirements and the terms "national park" and "nature reserve" for example do not have precisely the same meaning throughout Australia. This creates some difficulty in summarising different categories of reservation.

The following information has been provided by the responsible State and Territory authorities and unless otherwise stated, represents the situation at 30 June, 1978 :-

| <u>New South Wales</u>   | <u>Total area (ha.)</u> |
|--|-------------------------|
| National Parks   | 1,734,630               |
| Historic Sites   | 1,013                   |
| Nature Reserves  | 338,602                 |
| Aboriginal Reserves  | 75                      |
| Game Reserves  | 2,629                   |
| TOTAL  | <u>2,076,949</u>        |
| <br>   |                         |
| <u>Victoria</u>  |                         |
| National Parks   | 244,219                 |
| Other Parks declared under the National Park Act               | 15,885                  |
| New Areas being managed as National Parks but not yet declared | 31,183                  |
| Land Act Reserves  | 17                      |
| Game Reserves  | 26,789                  |
| Game Refuges   | 639                     |
| Faunal Reserves  | 34,136                  |
| TOTAL  | <u>352,868</u>          |
| <br>   |                         |
| <u>Queensland</u>  |                         |
| National Parks   | 2,182,169               |
| Fauna Reserves   | 30,228                  |
| Environmental Parks  | 33,224                  |
| TOTAL  | <u>2,245,621</u>        |
| <br>   |                         |
| <u>Western Australia</u>                                       |                         |
| National Parks   | 4,463,087               |
| Other Reserves   | 1,673                   |
| TOTAL  | <u>4,464,760</u>        |

N.B. Additional areas in excess of 7 million hectares are vested in the department of Fisheries and Wildlife in various categories of reserves.

Relevant material in detail.

AREAS RESERVED (contd)

| <u>South Australia</u> | <u>Total area (ha.)</u> |
|------------------------|-------------------------|
| National Parks         | 232,997                 |
| Conservation Parks     | 3,661,882               |
| Game Reserves          | 15,463                  |
| Recreation Parks       | 2,788                   |
| TOTAL                  | <u>3,913,130</u>        |

N.B. As at 30 June, 1977

| <u>Tasmania</u>    |                |
|--------------------|----------------|
| National Parks     | 625,283        |
| State Reserves     | 27,765         |
| Historic Sites     | 499            |
| Nature Reserves    | 28,099         |
| Aboriginal Sites   | 1,242          |
| Conservation Areas | 16,671         |
| TOTAL              | <u>699,559</u> |

| <u>Northern Territory</u> |                  |
|---------------------------|------------------|
| National Parks            | 232,441          |
| Historic Sites            | 6,073            |
| Scenic Reserves           | 14,980           |
| Recreation Reserves       | 3,794            |
| Scientific Reserves       | 275              |
| Wildlife Sanctuaries      | 4,971,100        |
| TOTAL                     | <u>5,228,663</u> |

| <u>Australian Capital Territory</u> |       |
|-------------------------------------|-------|
| Reserves                            | 9,843 |

The Commonwealth has special responsibilities in national park management in the Uluru (Ayers Rock-Mt. Olga) National Park and Kakadu National Park both in the Northern Territory.

Uluru (Ayers Rock-Mt. Olga) National Park

This park was proclaimed under the National Parks and Wildlife Conservation Act 1975 on 24 May, 1977 and contains the spectacular formations of Ayers Rock and the Olgas, together with a representative sample of the arid land systems of Central Australia.

Because of the increasing number of people visiting the park a major problem has arisen to preserve park values whilst permitting public use of the area. A plan of management is being prepared and a program of improving facilities and restoring park values has begun.

Kakadu National Park

Among the recommendations of the Ranger Uranium Environmental Inquiry which the Government accepted on 25 August, 1977 were those pertaining to the establishment of a major national park in the Alligator

Kakadu National Park (contd)

Rivers Region of the Northern Territory and the granting of Aboriginal land rights.

The area contains some of Australia's most extensive wetlands which support a wide range of fish and waterbirds. Ancient sandstones have eroded away to form a spectacular escarpment and a number of outliers. This escarpment zone has a range of plant communities, including relics of Indo-Malaysian flora and provide habitats for hundred of species of mammals, birds, reptiles and invertebrates, many of which are extremely rare. The park is also significant for its Aboriginal heritage of superb rock paintings, mythology and traditional way of life.

COMMONWEALTH AUTHORITIESDepartment of Science and the Environment

Within the Commonwealth Department of Science and the Environment there are groups involved with the environmental protection of land, air and water resources and the control of pollution, waste disposal, monitoring and resource usage.

Australian National Parks and Wildlife Service

The Australian National Parks and Wildlife Service was established following the passage of the National Parks and Wildlife Conservation Act in March 1975. In July, 1976 the Commonwealth re-defined the roles and responsibilities of the Australian National Parks and Wildlife Service. While reinforcing the National Parks and Wildlife Conservation Act 1975, this served to delineate more clearly the working relationship between the Service and other Commonwealth and State nature conservation authorities. In carrying out its functions the Service co-operates closely with these authorities to ensure the co-ordination of activities and the efficient use of available resources.

The Service is based in Canberra and has branches in Darwin, Norfolk Island and Christmas Island (Indian Ocean). It is responsible to the Minister for Science and Environment.

Great Barrier Reef Marine Park Authority

The Great Barrier Reef Marine Park Authority was established in 1976 by the Commonwealth Government. This authority works closely with the Queensland Government and is responsible for recommending areas for declaration, preparing zoning and management plans for these areas and ensuring that research relevant to the Marine Park is carried out. It is responsible to the Minister for Science and the Environment.

Department of Home Affairs

The Department of Home Affairs has responsibility for nature conservation in the External Territories. Close liaison is maintained between the Department and the Australian National Parks and Wildlife Service in the development of conservation and management policies.

The Australian Heritage Commission

In July 1976, the Australian Heritage Commission was established and is currently responsible to the Minister for Home Affairs. The Commission is preparing a Register of the National Estate which lists natural and built environments of significance to Australia's heritage.

Department of the Capital Territory

The Department of the Capital Territory has direct responsibility for parks and nature reserves in the Australian Capital Territory and the Jervis Bay Territory.

OTHER ORGANISATIONSCouncil of Nature Conservation Ministers

A Council of Nature Conservation Ministers (CONCOM) was established in 1974 and all Commonwealth, State and Territory Ministers with responsibility for national parks and wildlife are members of it.

The prime objective of the Council is to develop co-ordinated policies for nature conservation and especially for the reservation and management of adequate areas of land for the conservation of Australian wildlife. Consideration is also given to matters of international policy particularly where both Commonwealth and State powers must be exercised to achieve an objective.

(Discussion on the above paper appears at page 9 of Volume II of the proceedings).

SITUATION REPORT - AUSTRALIAN CAPITAL TERRITORY AND JERVIS BAY TERRITORYGEOGRAPHY

The Australian Capital Territory covers an area of 2356 square kilometres, accommodating the city of Canberra, Australia's largest inland city.

The Territory is drained by the Murrumbidgee River and its tributaries, flowing from the south east to the north west and dividing the Territory into two broad geographical regions. To the east and north east lies the Canberra Plain on which Canberra is sited at an elevation of approximately 600 metres, interspersed with low residual hills rising to between 800 and 850 metres. To the west and south, the land rises from the Murrumbidgee Scarp to the upland and mountain region of the Territory. Some of the higher peaks are between 1800 and 1900 metres above sea level.

The Commonwealth Territory of Jervis Bay lies on the south-east coast of Australia at latitude 35°09' south and longitude 150°42' east. The total area of 7360 ha is comprised of a sandstone peninsula, a small island and part of the waters of Jervis Bay. The Territory is characterised by a substantially natural landscape with little settlement and outstanding coastal scenery.

CLIMATE

Canberra has an average annual rainfall of 615 mm. In the upland and mountain region average rainfall is approximately 750 mm to 875 mm with some areas receiving as much as 1500 mm per annum. The average number of days of rain is 109. Canberra weather is characteristically clear and sunny.

The coldest month is July with an average daily maximum of 11.1°C and an average daily minimum of -0.3°C. January is usually the hottest month with average maximum daily temperature of 27.4°C and an average daily minimum of 12.9°C.

Morning fogs are common during the colder months with an average of 35 days each year experiencing fog. Canberra has an average of 103 days of frost each year. Snow falls in the city each year rarely persist past early morning. Above 1200 m snow falls regularly and above 1500 m snow is found for about three to four months each year.

Climate of the Territory of Jervis Bay is strongly influenced by its coastal location which moderates extremes of temperature. Average maximum air temperatures range from 15.1°C in July to 24°C in February and the average minimum range is from 9°C in July to 17.9°C in February.

The average annual rainfall is 1218 mm, relatively evenly distributed throughout the year. May is normally the wettest month and September the driest. A sea breeze air-circulation system applies with day breezes coming mainly from the north-east.

POPULATION

The Australian Capital Territory has a population of approximately 223,000 with 99 per cent resident in Canberra, making the city the largest inland city in Australia.

POPULATION (contd)

The estimated population for the year 2000 is 390,000. In 1976 the population was growing at approximately 6.5 per cent per year and was of considerable significance to natural resource managers. However, growth rate fell dramatically to 2.4 per cent in 1977 and has since risen to a steady rate of growth of approximately 3.5 per cent annually.

The ACT receives an estimated 2.0 million tourists per year and an increase to something in excess of 4 million visitors per year by 1985 is anticipated. An increasing proportion of tourists can be expected to visit ACT nature reserves and associated areas in the future.

POLICY

The Commonwealth Government through its principal planning agency the National Capital Development Commission, and its land management agency the Department of the Capital Territory, has emphasised the need for preservation of the landscape setting of the National Capital.

Government agencies have similarly emphasised conservation of Canberra environs for the purposes of sustaining a diverse recreational cultural and ecological resource.

With such a clearly defined and unifying purpose, the partners in planning for the management and use of resources of the ACT seldom experience serious conflicts of interest.

Unlike other States and Territories of Australia, land is almost entirely Government owned. The 0.2% of the ACT privately owned is expected to pass to Government ownership in the long term.

Nevertheless, as elsewhere, land acquisition for the purposes of urban development or reservation for nature conservation and recreation poses significant problems for Government.

Whilst the Department of the Capital Territory recognises the need to reserve large tracts of wilderness, it is aware also of the need to reserve lands within the present and future city limits. Consequently, a range of largely natural areas, man-modified areas and 'recycled' lands are being reserved for nature conservation, recreation and education purposes.

Particular attention is paid to the conservation of the waters and environs of the Murrumbidgee River and its tributaries.

The Department is firmly committed to interpretation, extension and environmental education programs which are conducted on a continuous basis.

ENVIRONMENTAL LEGISLATION

Legislation is somewhat inadequate at present, but a new Nature Conservation Ordinance to replace the existing Public Parks Ordinance, has been drafted and is expected to be introduced during 1979. The draft Nature Conservation Ordinance provides for -

- . reservation of land for Nature Reserve purposes, and will include special purpose land such as a wilderness area;
- . protection of plant and animal wildlife including the proper regulation of commercial trading in plant and animal wildlife;
- . control of access and use of reserved lands;

- . control of the above provisions to be vested in a Conservator of Wildlife appointed by the Minister for the Capital Territory;
- . establishment of a Nature Conservation Advisory Council.

Recreation areas, seldom more than several hectares in extent are declared under the Public Parks Ordinance.

Approximately 20 Ordinances administered by the Department of the Capital Territory relate to management of natural resources and environmental quality in the ACT and Jervis Bay Territory.

Areas reserved for nature conservation purposes include the following -

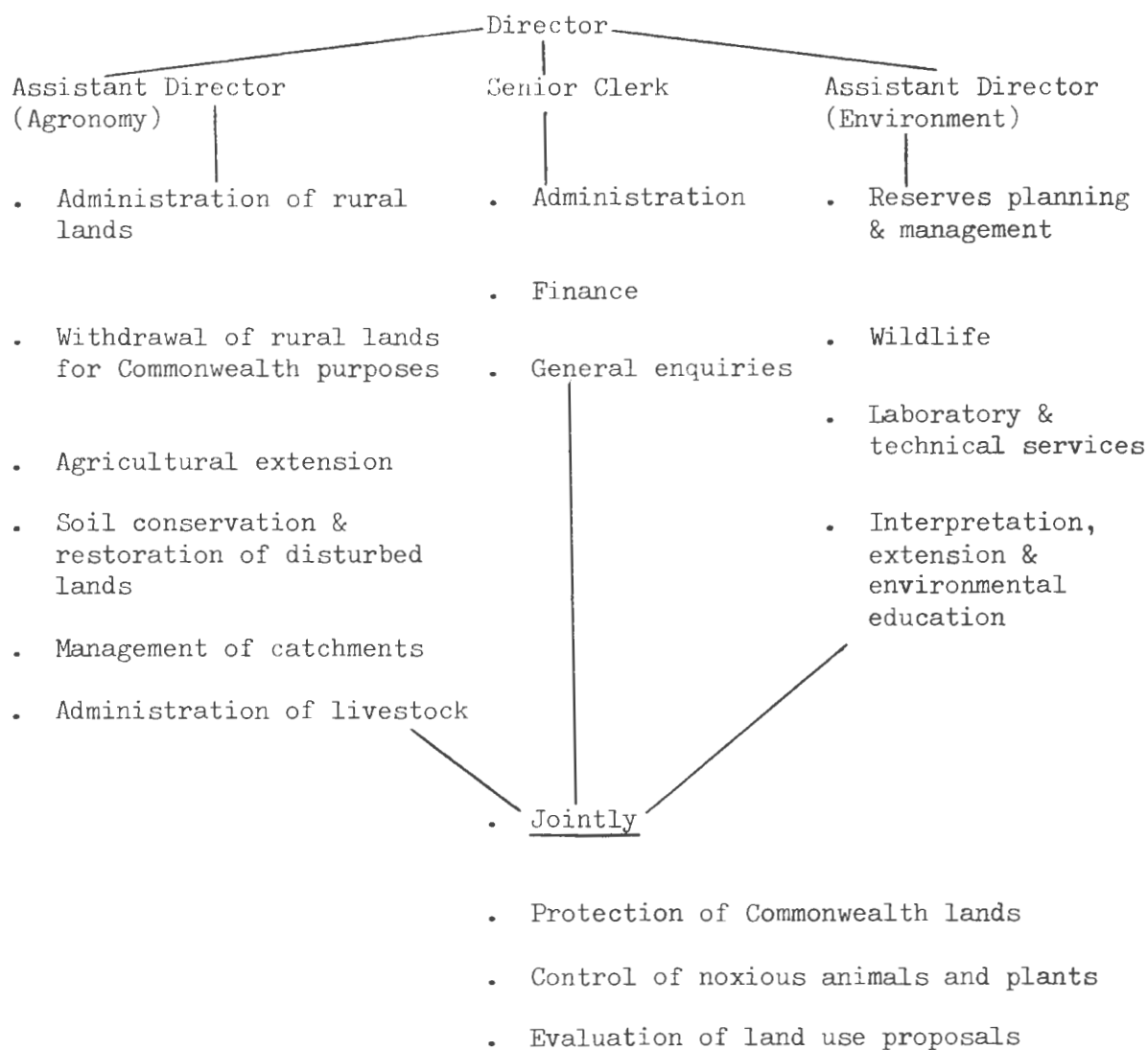
|                                  | <u>Area (ha.)</u> | <u>Year Declared</u> |
|----------------------------------|-------------------|----------------------|
| Black Mountain Reserve           | 521               | 1970                 |
| Gudgenby Nature Reserve(Stage 1) | 51,000            | 1979                 |
| Jervis Bay Nature Reserve        | 3,807             | 1971                 |
| Tidbinbilla Nature Reserve       | 4,050             | 1964                 |

Much land in the ACT, whilst not formally declared as nature reserve, is managed in sympathy with gazetted reserves. Consequently the Department of the Capital Territory is able to manage a series of open lands which grade from the heavily developed and intensively managed urban areas, through peri-urban and rural lands into formal nature reserves. In order to facilitate more orderly management of these unreserved open lands the Department is planning to draft a new Open Lands (Protection and Use) Ordinance.

A large water supply catchment, the Cotter Catchment (47,000 ha.) declared under the Cotter River Ordinance 1914-1959, is closed to the public for recreation purposes but is effectively managed for nature conservation in the ACT.

#### ADMINISTRATION

The Conservation & Agriculture Branch employs approximately 150 personnel. Of that number, 34 officers are stationed at head office. The remaining 111 personnel comprise field officers and day labour staff.



(Discussion on the above paper appears at page 43 of Volume II of the proceedings).



SITUATION REPORT - COOK ISLANDS

Mr Chairman,

On behalf of my Government, may I congratulate the Government of New South Wales and the Government of Australia for hosting the South Pacific Conference on National Parks and Reserves. My Premier and Government appreciates the invitation from the Government of New South Wales and the Prime Minister of Australia for representation by our Government at this Conference.

Mr. Chairman, we recall that on 5 June 1972, the U.N. Conference on the Human Environment was held in Stockholm. That day in 1972 was an important landmark in the development of the increasing concern all over the world for the need to protect and manage our environment. Many developed countries while becoming very rich had destroyed and poisoned much of the very earth needed for the continued well-being of their people.

The traditional ways of the Pacific Islands are being replaced by new ideas and methods. The rate of exchange and the changes themselves need to be analysed fully, from a social and cultural viewpoint as well as an economic viewpoint. At present however, little is done to control the impact of the "Western Society and its Technology".

With "Economic Independence" and "Self Reliance" as stated aims for my country it is important that the environmental resources of the Cook Islands are properly cared for. The biological balance of the Cook Islands environment will determine the success or otherwise of economic independence and self reliance aims.

To ensure a healthy environment is available to the Cook Islands people, key resources have to be protected. These resources include land area and the soil, water catchments, vegetation, the reef and lagoon systems which have in the past and in some cases still provide a basis of life for Cook Islanders.

Without protection these resources will disappear, the basis of self reliance destroyed. Our past mistakes include:

- (a) The uncontrolled use of the bulldozer has caused loss of valuable topsoil and agricultural land needed for the development of my country.
- (b) Uncontrolled removal of sand from beaches and creekmouths is a major contributor to widespread foreshore erosion. Loss of land and vegetation here reduces natural protective barriers to inland agricultural lands.
- (c) Fire, buildings, removal of tree cover, roads all pose threats to the stability of critically important water catchments. Clean and available water is critical for survival.
- (d) Soil erosion/siltation, chemical pollutants, poor marine management are threatening the marine resources of my country.
- (e) Uncontrolled construction is reducing the value of coastal areas as a tourist attraction.

Mr Chairman, the theme of this conference "Man, Land and Sea", is very appropriate to the needs of the Cook Islands. My country is gradually learning from the mistakes of developed countries in their endeavour to become rich.

We, the people of the Cook Islands live in the most beautiful group of islands in the world. My Government will endeavour not to make the same mistakes made by those developed countries. It fully recognises the importance of a healthy environment as a means to achieving a healthy society. Therefore, my Government will ensure that any activity which results in damage to our land, our lagoons, our reefs and our ocean will be prohibited. My Government will institute a programme of conservation and environmental education at all levels. A programme of regular inspection of any polluting or potential environmentally harmful activities will be instituted immediately. In addition to this, our people will be encouraged to preserve the beauty of our Islands and to plant new and useful trees whenever any tree has to be removed for planting and building.

My Government will financially assist in the provision of parks (Suwarrow Island), and will encourage landowners to provide family reserves. Our Maraes and historical sites will be restored and preserved for our children.

The Government will ensure that our lagoons are protected as essential source of food for our people.

Lastly may I thank you and your Government for providing us with the services of two Conservation Environmental Advisors in the persons of Mr. Neville C. Gare and Mr. Stephen N. Shaw. They have assisted our Government considerably in its efforts relating to the creation of an awareness amongst our people of the need to conserve our natural resources and to maintain the attractive physical attributes of our islands. Their conscientious efforts have, therefore, been of great assistance to us and have already shown visible results.

KIA ORANA E KIA MANUIA.

(Discussion on the above paper appears at page 12 of Volume II of the proceedings)

SITUATION REPORT - FIJIPREAMBLE:

Since Independence in 1970, Fiji has become more aware of the need to set aside and preserve representative ecosystems of these islands and areas of beauty, recreation, and historic interest. This report briefly outlines the situation in Fiji.

GEOGRAPHY:

The 844 islands and islets of the Fiji group lie between latitudes 15° to 22° South and between longitudes 174° East and 177° West. 400 kilometres NNW of the group (at 12°S and 177°E) lies Rotuma and its associated islands which are politically part of Fiji. Total land area is 1.83 million hectares, nearly the same as the State of Hawaii. The two largest islands are Viti Levu (1 million ha) and Vanual Levu (0.6 million ha). The four largest islands are of volcanic origin and are extremely rugged and mountainous. On Viti Levu there are 29 peaks over 1,000 metres high capped by Mt. Tomaniivi at 1,320 metres. The result is a complicated pattern of ridges and valleys, the skyline often being broken by plugs, cones, and nearly vertical thumbs. The low islands are of coral or limestone formation and are often no more than several metres above sea level. Limestone islands often have steep undercut cliffs cut into intricate shapes. Many islands are of mixed origin and practically all are surrounded by fringing or barrier reefs, the longest of which stretches for nearly 500 kilometres.

CLIMATE:

The climate of Fiji is tropical oceanic modified by two factors: (1) on the main islands the mountains lie perpendicular to the prevailing South East trade winds, and (2) the country lies in the South Pacific hurricane belt. Because the group lies about 2,000 kilometres from a relatively large land mass (New Zealand), the climate is generally mild. The windward sides of the main islands tend to be wetter and cloudier than the leeward sides. Small islands have weather similar to that of the dry zones but with rainfall more evenly spread throughout the year. Typical wet zone rainfall is 3,000 to 3,500 mm annually; dry zone, 1,600 to 2,300 mm. The mean temperature is 25°C with both an annual and diurnal range of 5.5°C. The summer months (November to April) are the wettest and also the period of most intense tropical storms.

POPULATION:

Fiji's annual growth rate has averaged 2% for the last decade. At the end of 1977 the population exceeded 600,000 of whom about 50% were of Indian decent, 44% were indigenous Fijians, and the remainder were of mixed, European, Chinese, Rotuman and other Pacific Island backgrounds. About 75% of the population live on Viti Levu, the largest city being the capital Suva with about 117,000 people. About 37% of the population live in urban area.

AREAS RESERVED:

In Fiji less than 7% of all land is crown. Eighty three percent is native-owned and non-saleable. Therefore land available for permanent reservation is limited. Eight nature reserves have been established since 1956 to protect flora and fauna.

| <u>Area</u>                   | <u>Size (h.)</u> | <u>Features</u>                      |
|-------------------------------|------------------|--------------------------------------|
| Tomaniivi (Mt. Victoria)      | 1,330            | rainforest, sub-montane cloud forest |
| Nadarivatu                    | 93               | tropical rain-forest                 |
| Naqaranibuluti (Mt. Lomalagi) | 280              | tropical rain-forest                 |
| Draunibota )                  | 2                | small island                         |
| ) (Bay of Islands,            |                  |                                      |
| Labiko ) Suva)                | 0.3              | small island                         |
| )                             |                  |                                      |
| Vuo )                         | 1.2              | small island                         |
| Vunimoli (Vanua Levu)         | 20               | tropical rain-forest                 |
| Ravilevu (Taveuni)            | 4,000            | tropical rain-forest                 |

The above areas include Fiji's highest mountain, rare ferns, and moss forest (Tomaniivi), virgin Agathis Vitiensis or Fiji Kauri (Nadarivatu), rare birds and rugged mountainous rain-forest (Vunimoli and Ravilevu), and small islands. These reserves legally, "enjoy absolute protection against human exploitation of their natural resources and against any form of injury to the integrity of the area resulting from human activity". Several other sites are being considered for nature reserves. In addition there are 17 unprotected but licensed "forestry reserves" totalling 32,000 ha and 20,000 ha of mangrove (mangrove areas were de-reserved in 1975). Sections of five of the former are being developed as small rural parks for recreation, with swimming, camping, hiking and nature trails. At the time of writing there are no true national parks. A number of areas have been investigated and several studied as possible sites for national parks, both terrestrial and marine.

#### ENVIRONMENTAL LEGISLATION:

The main pieces of relevant legislation affecting land use are the Crown Lands Ordinance (CAP. 113 of the Laws of Fiji), Native Lands Ordinance (CAP. 114), Crown Acquisition of Land Ordinance (CAP. 119), Land Conservation and Improvement Ordinance (CAP. 120) and the Forestry Ordinance (CAP. 128). Existing nature reserves have been created under the last of these. Under the National Trust for Fiji Ordinance of 1970, that body is "to promote the permanent preservation for the benefit of the nation lands (including reefs), buildings,... have national, historic, architectural, or natural interest or beauty", and is therefore pressing for the creation of parks and more reserves on crown land and, under long-term lease, native land.

#### ADMINISTRATION:

Existing nature reserves, forest reserves and forest parks are administered by the Forestry Department. The National Trust for Fiji, which is a statutory body whose Council is chosen by the Minister for Social Welfare, is promoting national park development. Park administration and development will draw on the services of those ministries with assistance from the Ministry of Communication, Works, and Tourism (who are helping finance small rural parks) and the Ministry of Lands and Mineral Resources.

#### CONSERVATION AND ENVIRONMENT AGENCIES:

No government agency has been created specifically to monitor or advise on environmental legislation, policy, or impact assessment of major development projects. Individuals within various ministries are

CONSERVATION AND ENVIRONMENT AGENCIES (contd)

involved with various aspects of these issues. For example, preliminary work on a Clean Air Act and a comprehensive Environmental Act is being done within the Ministry of Health and an environmental committee was chaired by a planner from the Ministry of Urban Development, Housing and Social Welfare. Staff of the University of the South Pacific often advise on specific issues. Protection of flora and fauna is the responsibility of the National Trust, the Ministry of Agriculture and Fisheries, and the Ministry of Forests.

POLICY:

Fiji's policy is to participate in as many environmental seminars and U.N. conferences as possible on environmental issues within available resources. At the 1972 Stockholm Conference Fiji's main concerns were for immediate international control of biosphere degradation, preservation of the marine environment from pollution (including radio-active fallout), and the increasing debasement of the quality of life by the industrialised countries.

At the World Population Conference in Bucharest in 1974, Fiji supported the Draft World Population Plan of Action. Locally the main areas of concern are: (a) harbour, estuarine, and coastal pollution associated with urban development and ship oil discharges; (b) industrial and traffic air pollution; and (c) waste disposal in urban areas the aim is to preserve for the public benefit marine and terrestrial ecosystems in the form of parks and reserves.

(Discussion on the above paper appears at page 14 of Volume II of the proceedings)

SITUATION REPORT - NEW SOUTH WALESPREAMBLE

It is appropriate that it is this year, the centenary year of national parks in Australia, that New South Wales should have the opportunity to summarise its situation for national parks and reserves.

New South Wales was the place where the first national park in Australia and the second in the world was established. It is known as Royal National Park and was established in April, 1879 as the result of a need for "breathing space" for its densely housed Sydney population.

In the one hundred years since then the attitude to national parks and, on a broader plane, to the natural environment has changed dramatically. Whereas in 1879 it was the desire of the people to change their surroundings so that they were as close to "mother England" as possible, today, the natural beauty of the Australian bush is appreciated and is protected by Acts of Parliament.

The manner in which this is achieved in New South Wales today is the subject of this report.

GEOGRAPHY

Situated between latitudes 28° and 38° south, the State of New South Wales covers an area of over 81,000,000 ha. This represents 10.34% of the total land area of Australia. The coastline stretches over 1,475 km from Queensland in the north to Victoria in the south. In the west, New South Wales has a common boundary with South Australia. The physical structure of New South Wales comprises a series of broad parallel bands of land type. The eastern coastline is characterised in the north by long sandy beaches formed near the mouths of the major coastal rivers. Large rugged headlands and numerous bays are also a feature of the coastline, particularly on the south coast. Behind the immediate coast are the coastal lowlands which extend westward up to 90 km until the mountainous eastern edge of the tablelands is reached. The tablelands comprise three regions :- the New England Tableland, Central Tableland and Southern Highlands which includes the Monaro Tableland. Bordering the Monaro Tableland to the south-west are the Australian Alps which contain Australia's highest peak, Mount Kosciusko at 2,229 m. West of the tablelands the land gently falls away along the headwaters and upper reaches of the great rivers of the Murray-Darling Basin. About two fifths of New South Wales is made up of relatively flat plains through which the western rivers flow.

CLIMATE

Generally New South Wales has a favourable climate. Situated between latitudes 28° and 38° south the State is subject to both sub-tropical and temperate climates. This combined with the varying landforms effects a variety of climates throughout the State.

The north coast is subject to the tropical influence of northern Australia and so has heavy summer rainfalls and high humidity. It is also affected, as the rest of the coast is, by the ocean. The warm east Australian current runs just offshore and has the effect of reducing summer temperatures and yet increasing normal winter temperatures.

The interior of the State is protected from moist air masses by remoteness and the physical barrier of the tableland mountains. In the north-west area for example, a desert climate prevails with an average rainfall of about 250 mm. However the southern section of the State has a higher rainfall and floods frequently occur.

CLIMATE (contd)

The eastern mountain ranges are part of the Great Dividing Range and the higher parts are often subjected to snow conditions in winter.

POPULATION

Australia's population now exceeds 14¼ million people. New South Wales has the largest population of any one State with over 4½ million. Of this number, about 80% live within a radius of 250 kilometres in the Newcastle, Sydney, Wollongong metropolitan areas. Outside this central region, the population figures in the various townships along the coast are comparatively small.

Although the annual average population growth rate for the State is approximately 1% certain areas have been growing at much faster rates. A government policy of decentralisation has produced two particular growth centres, Albury/Wodonga and Bathurst/Orange which are growing at rates of 2.1% and 3.4% respectively. Otherwise, coastal towns are the fastest growing centres in the State.

POLICY

It has been a policy of the National Parks and Wildlife Service as an instrument of the Government to expend a large proportion of available funds on land acquisition on the premise that the primary objective of a nature conservation body should be to reserve lands identified as repositories of our natural heritage. This policy will continue in the foreseeable future.

In acquiring land, a deliberate effort has been made to secure viable samples of all natural environments in New South Wales; even where this involves buying land which has comparatively little recreational potential.

Management policy for national parks aims at providing reasonable recreational opportunity whilst preventing usage which may seriously impair the value of areas as samples for scientific reference purposes.

In the wildlife sphere, the Service aims to prevent extinction of native species. However, it recognises that destruction of individual native animals may be necessary for economic or other reasons provided that the species is not thereby endangered.

The Service keenly supports the concept of assisting and co-operating with similar bodies in other administrations. In practice this has hitherto revolved around ranger training, secondment of staff, publication of park sign and furniture manuals and participation in conferences such as this.

ENVIRONMENTAL LEGISLATION

Many Acts of the New South Wales Parliament are concerned with the environment and in turn several government departments bear the responsibilities of implementing them.

The most relevant to the terms of reference of this conference is the National Parks and Wildlife Act of 1974. This Act served to combine three separate and previous Acts. It is under this legislation that the National Parks and Wildlife Service of New South Wales operates.

The Act of 1974 :-

- \* provides for the reservation of national parks, nature reserves, historic sites, wildlife refuges, game reserves, aboriginal areas and protected archaeological areas.

ENVIRONMENTAL LEGISLATION (contd)

- \* vests the control of most of the afore-mentioned areas in the Director of National Parks and Wildlife, (one historic site remains under the control of a trust).
- \* makes wide ranging provision for the conservation of Aboriginal relics and native mammals, birds, reptiles and plants.
- \* constitutes various advisory bodies.
- \* requires the preparation and implementation of plans of management for parks and certain other areas.
- \* establishes a separate National Parks and Wildlife Fund.
- \* enables the acquisition of land for the purposes of the Act.
- \* allows leasing of park land for a few appropriate purposes.

The Crown Lands Consolidation Act 1913 enables the reservation of public land for a multitude of purposes, some having nature conservation overtones. There are thousands of these reserves. Though most are quite small, many have local importance to conservation.

The Crown Lands Consolidation Act also provides for the establishment of State Recreation Areas. In concept, these are midway between small local reserves and the national parks. They are of significant size and many comprise land in a substantially natural condition.

The Forestry Act 1916 allows reservation of parts of State forests as flora reserves. There are several of these reserves. Usually small, they aim at protecting particular unusual or endangered plant species and thus fulfil a useful conservation role. Again, the State forest system which takes in great tracts of native forest, makes a valuable contribution to conservation of native species while, in recent times, the controlling body (Forestry Commission) has endeavoured to provide for increased recreational use of its forests thereby increasing their aggregate value to society.

There are many other statutes which relate to environmental quality and it is the responsibility of the departments mentioned in a later section of this paper to administer them.

AREAS RESERVED

The areas managed by the National Parks and Wildlife Service and mentioned in this report are defined as follows :-

Owned by the Service:

- |                 |  |
|-----------------|--|
| National Parks  | - spacious areas containing unique or outstanding scenery or natural phenomena which provides relief from man's cultural landscape.  |
| Nature Reserves | - Areas containing wildlife or natural environment or natural phenomena. These areas are biased towards holding samples of environments for their intrinsic value to scientific investigation and knowledge. |



AREAS RESERVED (contd)Owned by the Service (contd)

- Historic Sites - The sites of buildings, objects, monuments or events of national significance.
- Aboriginal Areas - Areas in which relics or Aboriginal places of significance are situated. They are intended largely for scientific reference.

Not Usually Owned by the Service

- Aboriginal Places - Areas of significance to Aboriginal culture which have the full protection of the Act.
- Protected  
Archaeological Areas - Areas for the protection of significant relics but which can be available for public inspection under certain conditions.
- Wildlife Refuges - Areas for preserving, conserving, propagating and studying wildlife, for conserving and studying natural environments and for simulating natural environments.
- Game Reserves - Areas providing for game conservation in its broadest sense and which allow for the hunting of game for recreation.

At the time of formation of the Service in 1967 Aboriginal areas were not included and State parks were small national parks. The latter have since been renamed national parks.

In 1967 there were :-

12 national parks  
7 State parks  
52 nature reserves  
6 historic sites

covering an area of 860,758 hectares.

Since then the Service has pursued its policy of land acquisition and by 31st December, 1978 the areas under its jurisdiction were as follows :-

46 national parks  
123 nature reserves  
9 historic sites  
5 Aboriginal areas  
3 game reserves

covering an area of 2,096,509 hectares.

This now represents over 2.6% of the State indicating that the Service estate has now more than doubled since 1967. Priority has been given to the acquisition of coastal land and since 1969, the length of the coast under control of the Service has risen from less than 40 km. to over 250 km. This represents nearly 18% of the coastline. The threat of development of coastal lands for tourist and residential purposes has been the main reason for this area being given highest priority.

AREAS RESERVED (contd)

The priorities of new area acquisition have been :-

1. Coastal lands
2. Special purpose areas - wetlands and threatened species habitats.
3. Arid and semi-arid areas.
4. Areas in the vicinity of Newcastle, Sydney and Wollongong.
5. Remnant environments on the slopes and tablelands.

Proposals to establish nature reserves and Aboriginal Areas do not have to be tabled before Parliament. They are established by proclamation in the Government Gazette. Proposals for national parks on the other hand, must be tabled in Parliament.

The accompanying map indicates the positions of national parks, nature reserves, historic sites, Aboriginal areas and game reserves. They can be loosely divided into the following regions each offering valuable and different natural features.

North Coast:

Angourie, Red Rock, Hat Head, Broadwater, Crowdy Bay and Myall Lakes. All these national parks have scientifically important coastal landforms with heath vegetation and coastal sand dunes. The Myall Lakes constitute the most natural coastal lake system in New South Wales. Mount Warning National Park provides a different landscape being a volcanic plug rising from rugged rainforest covered hills.

South Coast:

The national parks, Murramarang, Ben Boyd, Mimosa Rocks, Seven Mile Beach and Wallaga Lake have the typical south coast rugged scenery of headlands, bays and lakes. Mimosa Rocks is one of the most picturesque areas under Service control with an 8 km. long coastline of beaches, caves and headlands.

Metropolitan Area:

There are ten national parks within 100 kilometres of Sydney offering the city's residents ideal outdoor recreational facilities. Most have hiking trails and camping sites and provide opportunity for study of native fauna and flora.

They are Ku-ring-gai Chase, Royal, Brisbane Water, Dharug, Bouddi, Blue Mountains, Kanangra Boyd, Heathcote, Macquarie Pass and Sydney Harbour.

Northern Tablelands:

New England, Gibraltar Range, Guy Fawkes River, Bald Rock and Dorrigo national parks contain a wide range of vegetation from sub-tropical to alpine. Spectacular mountain scenery is found in all the parks. Guy Fawkes River National Park contains a long stretch of wild river passing through rugged terrain.

Southern Tablelands and Central Tablelands:

Morton and Kanangra Boyd National Parks have rugged scenic terrain with waterfalls and wilderness bushwalking. Thirlmere Lakes National Park is a small area of outstanding scientific importance.

AREAS RESERVED (contd)Alpine:

Kosciusko National Park is the largest in New South Wales containing 617,692 hectares. This is the only developed snow skiing area of the State. Mt. Kosciusko at 2,229 m is the highest mountain in Australia. Barrington Tops National Park to the north-west of Sydney is a sub-alpine massif. Trout fishing and excellent walks are a feature of this park.

Slopes:

Weddin Mountains, Cocoparra, Warrumbungle and Mt. Kaputar National Parks all have a mixture of interesting ground flora and wildlife. At Warrumbungle and Mt. Kaputar the visitor can explore spectacular scenery resulting from erosion of extinct volcanoes.

Western Division:

Sturt and Kinchega National Parks are located in the semi-desert region of the State. At Willandra National Park the Lachlan River overflow provides excellent watering areas for abundant wildlife. A spectacular feature of the far west semi-desert country is the colourful wildflower display which follows the infrequent rains.

The nine historic sites reserved under the National Parks and Wildlife Act offer a diversity of interests. Just south of Sydney on the southern shore of Botany Bay, Captain Cook's Landing Place has been preserved. A visitors' centre and Museum have been built in the 324 hectares which make up the site. In the heart of Sydney at Circular Quay, Cadman's Cottage - which dates back to 1816, thus making it the oldest remaining residential building in Sydney - has been restored and is open for public inspection.

South of Sydney on the north shore of Botany Bay is Bare Island Fort, built to repel the Russian fleet. The monument to the French explorer, La Perouse, is nearby. On the foreshore of Sydney Harbour is Vaucluse House, a colonial mansion, once the home of W.C. Wentworth an important figure in the exploration and political life of the colony of New South Wales. This building is a fine example of 19th century architecture. Moving out of Sydney, the village of Hartley is currently being restored. It is on the western slopes of the Blue Mountains and is a unique example of a well preserved 19th century village. Further west the Hill End Historic Site offers visitors the chance to search for gold on a field that produced 2,000,000 ozs. of gold between 1871 and 1874. Mootwingee Historic Site is only 80 miles from the famous mineral city of Broken Hill. At Moonwingee visitors are able to inspect many fine examples of Aboriginal rock engravings.

The five Aboriginal areas are dedicated to preserve and prevent disturbance to camp sites such as middens or caves, art sites, ceremonial grounds and other relics of Aboriginal life.

There are now 123 nature reserves with a total of 342,682 hectares. These wildlife conservation areas are dedicated to ensure the retention of samples of the natural environment. They also provide habitat for native fauna.

Two of the areas controlled by the Service, Kosciusko National Park and Yathong Nature Reserve have been designated as Biosphere Reserves.

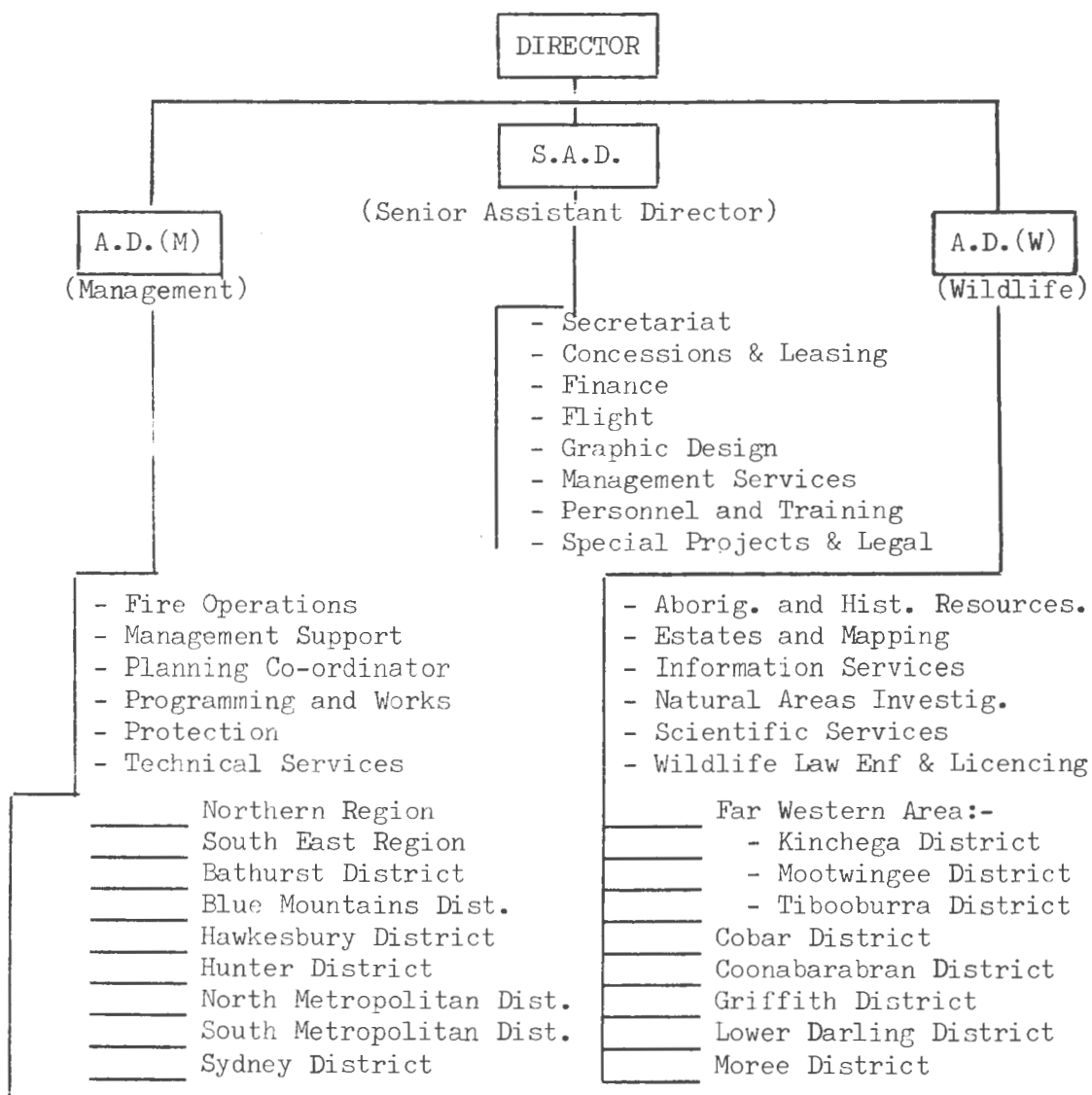
ADMINISTRATION

The objectives of the National Parks and Wildlife Service of New South Wales are the conservation of nature, including animals, plants and places of scenic beauty; and the preservation of historic sites as well as areas of significance to Aboriginal culture.

The purposes for which land and sites are conserved are educational, scientific, recreational and cultural.

To carry out these responsibilities the Service employs about 500 officers; approximately 190 of these are located in the Service's Head Office in Sydney. The executive consists of the Director, Senior Assistant Director and two Assistant Directors. Overall responsibility to the Minister and final authority for Service operations rests with the Director. Within the Head Office, the Service is divided into sixteen sections and each is directly responsible to an Assistant Director.

The Service is obviously very much a field orientated organisation. For ease of management the State has been divided into regions and districts. At the present time, there are two (2) regions each under the control of a Regional Superintendent, the Northern Region and the South-Eastern Region. The rest of the State is divided into districts with both the Regional Superintendents and the District Officers in charge being responsible to an Assistant Director. It is the policy of the Service that many of the administrative functions will be regionalised. Plans are presently in train to extend regional coverage over the whole State by the creation, initially of two more regions.



When full registration is established, it is envisaged that the Head Office of the Service will function as a place for :-

ADMINISTRATION (contd)

- \* the evolution and crystallisation of broad policy.
- \* the provision of specialist services (architecture, law, etc.)
- \* performance of functions which show marked economies of scale and which are thus centralised for reasons of efficiency and
- \* determination of basic priorities.

Advisory Bodies:

The National Parks and Wildlife Service is assisted by several advisory bodies. They are :-

National Parks and Wildlife Advisory Council -

A group made up of representatives of private conservation bodies, representatives of other government departments whose work has affinity with the Service, representatives of Advisory Committees and specialist advisers. The Council gives continuing advice to the Ministers and the Service on matters relating to the care control and management of the Service estate and wildlife. The Council also has a statutory review role when plans of management are being prepared for parks and historic sites.

Aboriginal Relics Advisory Committee -

This expert Committee advises the Minister and the Director on the conservation of Aboriginal Relics. Most members are professional archaeologists or anthropologists.

Advisory Committees -

These Committees tend to be local in nature. Committees may be constituted for each park or historic site under the National Parks and Wildlife Act. Members are usually people who live near the park concerned or people who have special knowledge of the park's resources. Committees advise the Director of National Parks and Wildlife on measures to improve the management of their areas. They guard against the Service becoming too introspective and insular and also provide a medium for participation by affected communities in the management of nearby parks.

OTHER ADMINISTRATIVE BODIESNew South Wales Planning and Environment Commission:

The Commission's prime role is to promote and co-ordinate town and country planning and to secure the orderly and economic development and use of land. Particular functions relevant to this conference are the administering of the coastal lands protection scheme, including the acquisition of lands required for the scheme and the acquisition of land for public purposes, e.g. open space country roads and special uses corridors.

State Pollution Control Commission:

This body ensures that all practical measures are taken in the State to control pollution to control the disposal of waste, and to protect the environment from harm.

OTHER ADMINISTRATIVE BODIES (cont'd)Department of Lands:

State Recreation Areas and minor reserves in New South Wales are managed by individual Trusts (or Boards) or by municipal or shire councils with the Department of Lands supervising the activities of the trusts.

Water Resources Commission:

The Commission is responsible for controlling the use of the State's water resources and for flood mitigation undertakings through the State.

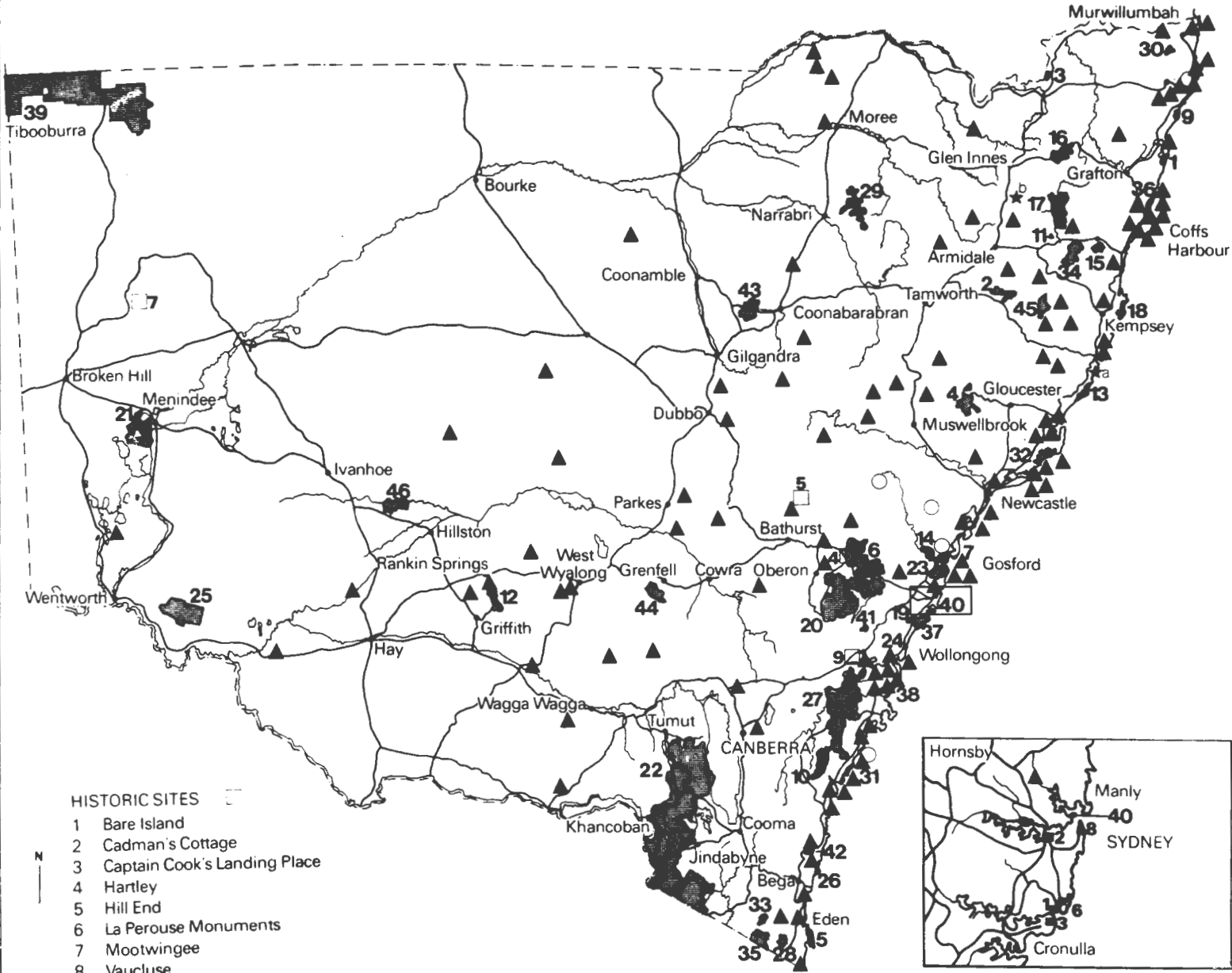
New South Wales State Fisheries:

This department is responsible for protecting, developing and regulating the fisheries of New South Wales.

Soil Conservation Service of New South Wales:

The main function of this Service is the prevention and mitigation of erosion and conservation of soil resources. This Service may affect natural areas such as beaches, semi-arid areas, mining sites, catchment areas and foreshore areas.

(Discussion on the above paper appears at page 15 of Volume II of the proceedings).



**HISTORIC SITES**

- 1 Bare Island
- 2 Cadman's Cottage
- 3 Captain Cook's Landing Place
- 4 Hartley
- 5 Hill End
- 6 La Perouse Monuments
- 7 Mootwingee
- 8 Vacluse
- 9 Throsby Park

SCALE 1 : 4,000,000

NATIONAL PARKS

1. Angourie
2. Apsley Gorge
3. Bald Rock
4. Barrington Tops
5. Ben Boyd
6. Blue Mountains
7. Bouddi
8. Brisbane Water
9. Broadwater
10. Budawang
11. Cathedral Rocks
12. Cocoparra
13. Crowdy Bay
14. Dharug
15. Dorrigo
16. Gibraltar Range
17. Guy Fawkes River
18. Hat Head
19. Heathcote
20. Kanangra Boyd
21. Kinchega
22. Kosciusko
23. Ku-ring-gai Chase
24. Macquarie Pass
25. Mallee Cliffs
26. Mimosa Rocks
27. Morton
28. Mount Imlay
29. Mount Kaputar
30. Mount Warning
31. Narramang
32. Myall Lakes
33. Nalbaugh
34. New England
35. Nungatta
36. Red Rock
37. Royal
38. Seven Mile Beach
39. Sturt
40. Sydney Harbour
41. Thirlmere Lakes
42. Wallaga Lake
43. Warrumbungle
44. Weddin Mountains
45. Werrikimbe
46. Willandra

HISTORIC SITES

1. Bare Island
2. Cadman's Cottage
3. Captain Cook's Landing  
Place
4. Hartley
5. Hill End
6. La Perouse Monuments
7. Mootwingee
8. Vaucluse House
9. Throsby Park

ABORIGINAL AREAS -NATURE RESERVES -GAME RESERVES

- a. Lake Innes
- b. Llangothlin.



SITUATION REPORT - FRENCH POLYNESIAPREAMBLE:

This paper, written for the Second South Pacific Conference on National Parks and Reserves held in Australia, from April 18th to May 3rd describes the situation of environmental protection in French Polynesia.

GEOGRAPHY:

Scattered between the 7° and the 28° latitude South and the 131° and 156° longitude West, French Polynesia islands extend towards the East scattered islands which occupy all the West part of Pacific Ocean.

The French Polynesian islands have a total land area of less than 4,000 km<sup>2</sup>. They are numerous (over a hundred) but small: the largest one is Tahiti, with an area of 1,042 km<sup>2</sup>. They are scattered over an ocean area of more than 4,000,000 km<sup>2</sup>. Although separated by ocean depth exceeding 2,000 metres, and morphologically different, they are all volcanic in origin. They fall into two categories:

- High islands, smaller in number, but larger in area, are the visible portion of volcanos whose bases are below sea level; (about 30 islands);
- Low islands, or atolls, are made of coral formations built on underwater volcanic bases (about 100 atolls).

The islands, positioned in a general North-West-South-East orientation are gathered into four distinctive archipelagos, these being Society islands, Tuamotu-Gambier islands, Marquesas islands, Tubuai or Austral islands.

CLIMATE:

The tropical climate is warm and humid. Annual rainfall affects the mean temperature in two ways:

- a warm, rainy season from November to April;
- a relatively cool and dry season from May to October.

The fact that the islands are scattered over a twenty degree latitude and vary in topography, accounts for climatic variation within and between areas. Rainfall, though scarcer on the Marquesas and the North Tuamotu (1,200 to 1,400 mm), is heavy on the other islands where it actually pours. Coastal rains can reach 2,000 mm, while mountain rains can exceed 4,000 mm.

Wind exposure play a role in local variations: windward shores have above average precipitations (3,000 mm on the North coast of Tahiti as compared to 1,800 mm on the West coast).

Temperatures vary little during the year. The average annual temperature in Papeete is 27°. It seldom exceeds 31° (February, March and April) and practically never drops below 20° (July, August, and September). However, in the more southern Tabuai islands, temperatures may drop as low as 14°.

There is always a high degree of humidity, averaging 75% to 80%. Surfaces are continually wrapped in mist.

The wind system is dominated by trade-winds (eastern winds). The north, northeast, and east winds blow from October to March, and clearly prevail over winds from other directions. April, May and June enjoy long periods of calm, broken by exceptional tropical cyclones. And at night, land breezes cool the atmosphere (7° of daily amplitude).

#### POPULATION:

The population of French Polynesia is now about 130,000 inhabitants. There has been a steady continuing increase, averaging over 3.5% yearly. Consequently, the majority of the inhabitants (55.6%) are under 20 years of age, but they are unequally distributed throughout the Territory. More than 70% are concentrated in the Windward islands. This imbalance is on the upswing, due to migratory patterns which drain the outer archipelagos and draw their population to overurbanized Tahiti.

The greater majority are Polynesians, whose languages are Tahitian, Marquesan and Paumotu. The other ethnic groups constitute another 25% of the population with abundant interbreeding.

#### POLICY:

A policy for the protection of the nature is necessary in Polynesia in two different fields. On one hand, the environment of the lagoon and the sea the importance of which is fundamental for a civilization essentially faced towards the fishery particularly in the Tuamotu archipelagos. In the other hand the land environment since the available surfaces are very reduced on the high islands with relief often very abrupt and with very precarious water resources. Then on the most populated islands, (Tahiti, Moorea, Raiatea) very severe competition exists on the coastal belt between urbanization, agriculture and the reserve areas for the protection of the natural environment. It's preferable to organize the development of these different activities and to distribute the space between them.

#### ENVIRONMENTAL LEGISLATION:

Three government departments bear the responsibility for environmental protection:

i) The Fisheries Department controls the marine environment and especially the mother of pearl which is the most exploited resource. This Service delivers every year exploitation quotas for each lagoon, manage at the same time studies about restocking of over exploited lagoons with the assistance of the CNEXO.

ii) The Forest branch (Section Forestiere) of the Agricultural Department (Service Economie Rurale) supervize the land environment owing to the forestry law (deliberation of February 7th 1958) which deals with the soil, flora and wild animal life protection. Among others this act forbids the hunt of all species of wild birds except the Molucca black bird (*Acridotheres tristis*: (Marle des Molluques), which populations multiplies very fast. It also sets the protection measures of the forest against the main aggressions (fire, land clearing, straying...) and forsees the reconstruction of the damaged natural environment (protection reforestation). This division is also charged with the natural park settling.

iii) The Planning Department (Service de l'Amenagement et de l'Urbanisme) sets up the town planning maps which manages the space.

Moreover the Natural Monument Site Commission established in 1962, which joined up the leading administrations (public services) and interested associations adjudges all the projects able to alter the natural environment and may propose the "classification" or the "inscription" to the Inventory of the most picturesque sites.

RESERVED AREAS:

No Natural parks exist in French Polynesia but two areas on Tahiti Island, (Mount Marau and Pari Coast) are now being examined. It is indeed on this island that the population density, the tourist tension and the necessity for recreation areas, adds to the urgency to create natural parks.

Moreover numerous reserves exist which have been classified by right of the law on natural monuments and sites:

- Leewards islands : Scilly lagoon (1971)
- Tuamotu : Robinson Reserve (atoll de Tararo) (1973)
- Marquesas islands : Eiao (1971)  
                          Mohotane (1971)  
                          Hatutu (1974)

All of these islands, except the Scilly atoll, are uninhabited and no administration has been created. The conditions for accessing and exploiting these resources are only regulated.

(Discussion on the above paper appears at page 17 of Volume II of the proceedings)

SITUATION REPORT -  
GILBERT ISLANDS

PREAMBLE:

The Gilbert Islands government has a Wildlife Ordinance (1975) which declares Christmas Island and some of the inhabited Line and Phoenix islands as Wildlife Sanctuaries. Malden Island, Starbuck and 4 areas inside Christmas Island are declared Closed Areas.

GEOGRAPHY AND AREA:

The Gilbert Islands consist of three groups of islands: the Gilbert Islands group (17), the Line Islands (8), the Phoenix Islands (8). The islands, scattered across two million square miles of the Central Pacific, are low lying coral atolls, many of which include lagoons. The sole exception is Banaba or Ocean Island which is an upthrust coral formation and rises to a height of 265 feet. There is little vegetation except coconut palms and the pandanus trees which grow prolifically.

CLIMATE:

The Central Gilberts, the Phoenix Islands and Banaba have a maritime equatorial type of climate. The Islands farther north and south are tropical. The mean annual temperature is 26.7 C. and both annual and daily ranges are small; easterly trade winds blow throughout the year. Some islands suffer from periodic droughts although the mean annual rainfall is about 50 inches on the islands close to the Equator, rising to 120 inches in the north. All the islands are outside the cyclone belt.

POPULATION:

The 1978 Census which is still continuing indicates so far the total population of about 58,000. Tarawa which is the capital has about 20,000. The 1973 Census indicated the total population of 57,819 but this was when the government was then the Gilbert and Ellice Islands. The Ellice Islanders have separated and formed their own government in 1976, so the figure above which is slightly higher than the 1973's refers only to the Gilbert Islands government.

AREAS RESERVED:

National Parks as such do not exist, nor are any areas reserved in the full sense of the word. However, wild birds sanctuaries have been declared on Christmas, McKean, Birnie and some of the Phoenix islands.

ENVIRONMENTAL LEGISLATION:

Environmental legislation is confined to the Wildlife Ordinance of 1975. This in itself is a good and solid piece of protective legislation, protecting all birds throughout the year and turtles when on land. It is also imposing heavy penalties to persons killing or molesting birds or turtles.

POLICY:

The Government has established the Wildlife Conservation Unit on Christmas Island with the primary objectives to protect the rich birdlife on the island. Regrettably birds on the island in the past have suffered destruction and egging.

POLICY: (contd)

Briefly, the Wildlife Conservation Unit at Christmas Island was set up in May 1977. At present it is manned by an expatriate acting as Technical Advisor and two local staff. The operation of the Unit is helped by overseas aid notably the British Government and the World Wildlife Fund.

Utilising the rich and spectacular birdlife of Christmas Island, the government is trying to promote naturalist type of tourism to help its poor economy.

(Discussion on the above paper appears at page 18 of Volume II of the proceedings).

## SITUATION REPORT - NEW CALEDONIA.

(Translated from French)

GEOGRAPHY

New Caledonia is situated in the South Pacific Ocean 20,000 km. from France, 1,500 km. from Australia and 1,500 km. from New Zealand.

It covers a surface of 16,750 km<sup>2</sup>, but with its Dependencies it reaches 20,000 km<sup>2</sup>. It is a large elongated island, 450 km. long, and 50 km. at its widest.

The West Coast is a large plain following numerous;\* it is followed by a zone of foothills and then by the "Central Chain" which falls away into the sea on the East Coast.

The island is very mountainous; although the maximum altitude does not exceed 1630 metres (Mount Panie), the average altitude in the mountainous chains which separates the island lengthwise, exceeds 1000 metres. Communications between East and West are very difficult due to the topography.

It is surrounded by a barrier-reef which exceeds 1,500 km. and which borders a lagoon of clear and rather shallow waters. This is the second lagoon in the world after the Australian Great Barrier Reef.

CLIMATE

Situated just below the tropic and in a N-W-S-E direction, it is subjected to the trade-winds system. New Caledonia has a sub-tropical climate. There are "four seasons":-

- a short dry season : April to June
- a short wet season : July to August
- a long dry season : September to November
- a long wet season : December to March

The average temperature is 23.5 degrees C but in the highlands it can drop quite low.

Rainfall is very variable. It varies regularly from 1 m/year on the West Coast to 3 m/year on the East Coast with maximums exceeding 4 m/year on the high peaks.

The period September-November is the sunniest and the most pleasant. At the beginning of the year, cyclones capable of causing great damages prevail.

POPULATION

With a total of 135,000 inhabitants, New Caledonia is not heavily populated for its 20,000 km<sup>2</sup>.

The numerous ethnic groups are distributed as follows:-

- Melanesians: 40%, mainly on the East Coast and in the Islands.
- Europeans : 40%, mainly on the West Coast and in Noumea.
- Others : 20%

POPULATION (contd)

Half of this population is concentrated in Noumea in the South-West of the island.

ENVIRONMENTAL POLICIES

New Caledonia presents some particular Nature characteristics:-

- a) a rich flora with more than 3500 species already listed and several sub-groups not yet studied, 90% endemic and with very particular species. It is tropical but contains many living fossils.
- b) a relatively poor fauna but endemic and scientifically very interesting.

Since man arrived in this country, large surfaces have been destroyed by exploitation and the introduction of very ubiquitous species compete greatly with a fragile vegetation.

Man's desire to have a history, to know his past, to preserve beautiful sites have urged this country's man to protect certain areas.

The causes of damages are essentially the following:-

- mines: 300,000 ha. are or will be exploited.
- bushfires: at least ¼ of the Territory burns each year.

This leads to the destruction of the ecological systems, of numerous animal and vegetal species, to the pollution of the rivers and lagoons, to an intense erosion (without a tropical climate and in a land with steep slopes).

Since 1950, New Caledonia has taken steps to combat destructions, to protect its Nature, so beautiful and so rich, to preserve its historical heritage and to allow for its study. These measures must allow for this protection whilst allowing mining activities (the basis of the country's economy). Among these actions, we shall confine ourselves to those concerning our purpose.

PROTECTED ZONES1. Reserves

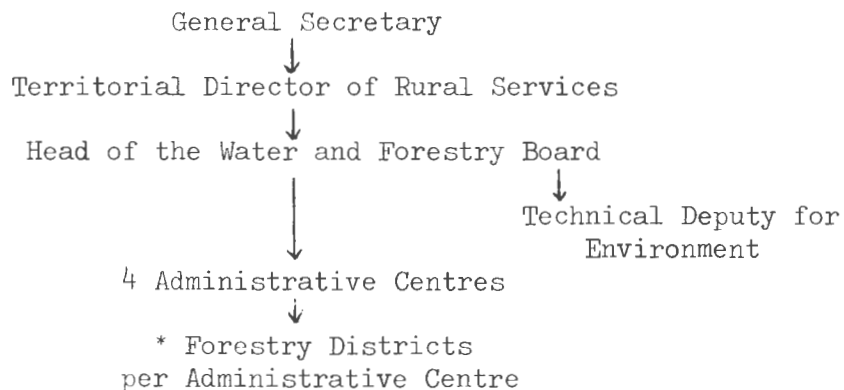
- a) Two integral Reserves:  
Where the ecological system is protected absolutely; everything is forbidden; nature is left to its own devices.
- b) Three Botanical Reserves:  
Where Flora alone is protected.
- c) Six Forestry Reserves:  
Where the forest as a living community is protected but where man may exercise a controlled interference.
- d) Three Game Reserves:  
Where terrestrial fauna is protected
- e) One Fishing and Game Reserve:  
Where terrestrial and aquatic faunas are protected.

PROTECTED ZONES (contd)

2. Eight integral protection perimeters.  
Where mining activities are forbidden.
3. One Marine Reserve  
Where the lagoon-coast-islets ecological system is integrally protected.
4. A Botanical and Zoological Park in Noumea and the Thy Forest near Noumea.  
Where the public is educated in the Nature of the country and local fauna's biology is studied.
5. Four large zones of partial protection perimeters  
Where prospecting and exploitation are regulated.
6. Moreover, before any mine is opened a "Commission for the Protection of the Environment" which evaluates the pollution and damage problems, the protection of the natural habitat (12.08.71), studies the conditions of the exploitation and of pollution. It can forbid the opening of a mine, order the closure of a mine too damaging to the Environment, recommend certain measures, and often it demands the protection of certain particular sites. Its operation is efficient and has already borne numerous fruit.
7. Classified Sites:
  - Archaeological : grottoes with momies.  
ethnographical sites.  
sites with petroglyphs.
  - Historical : Noted sites of French History in  
New Caledonia since 1943.
  - Touristic : For the beauty of their sites.
8. Exact measures for each species complete this protection.

ADMINISTRATION

The Water and Forestry Board is the body chiefly responsible for the successful implementation of these policies and for the pursuit of the study of this Nature.





ADMINISTRATION (contd)

Each agent controls the classified zones found in his geographical sector.

Moreover, the Head of the Board is a member of:-

- the Game and Freshwater Fishing Commission.
- the Commission for Sites and Monuments.
- the Commission for the Protection of the Environment.

The study of NATURE is especially the concern of O.R.S.T.O.M. (Office for Overseas Scientific and Technical Research) and of the Board's Managerial Staff.

FUTURE

The Territory pursues its policies for the protection of the environment.

- a) It standardises and specifies the various existing status.
- b) It proposes new zones to be converted into parks and reservations.

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Translator's Note: \* In both these instances words have been omitted in the french original.

(Discussion on the above paper appears at page 19 of Volume II of the proceedings).

SITUATION REPORT - THE NEW HEBRIDES OR VANUAAKUGEOGRAPHY AND GEOLOGY:

Situated between latitudes 13° and 21° south, the New Hebrides or Vanuaaku, consists of a chain of seventy islands, lying in a north-south direction. The Solomon Islands lie 800 kilometres to the north west, Fiji lies 800 kilometres to the east and New Caledonia 400 kilometres to the south west. It is approximately 1,200 kilometres to the north east of New South Wales. The total land area is 11,880 square kilometres.

Most of the islands are generally hilly and only about 6,000 kilometres of the surface area is potentially cultivable. Of the 6,000 square kilometres, 27% are on coastal plains with coral and alluvial soils and 73% on plateaus with deeper soils.

The islands have two main geological origins, coral formation and volcanic activity. They are geologically very young and continue to be subject to earthquakes. There are three active volcanoes namely the Yasur on the island of Tanna (south), the Lopevi (central) and the Benboo on the island of Ambrym (north).

CLIMATE:

The climate varies from tropical in the north to subtropical in the south, with a mean annual rainfall of 2,360 millimetres per year. The December to April period tends to be hot and wet (temperatures between 21° and 30° C.) and May to November period is cooler and drier (temperatures between 19° and 28°C.) Temperatures and rainfall tend to be higher in the north and lower in the southern parts of the group. Like other South Pacific islands, the New Hebrides or Vanuaaku is subject to cyclones and tropical depressions. On an average, one every two years in the north and one a year in the south. The high winds and heavy rainfall usually associated with cyclones can cause considerable damage.

POPULATION:

There is a population census being carried out at present, however, according to the last population census conducted in 1967, the total population was said to be 78,000 persons. The growth rate was thought to be 2 - 5% giving an estimated population at the end of 1978 of around 100,000.

The two main towns are estimated to have about 18% of the total population, 14,300 in Vila (the capital) and 4,100 in Luganville. The rural population is very unevenly distributed. Large islands usually have relatively small population whilst small islands are often very densely populated.

POLICY:

Governed jointly by France and Britain for the last seventy years, the colonial powers have never established a policy on national parks and reserves in the New Hebrides or Vanuaaku.

Although the present government is transitional, pending proper democratic elections later this year, it is our intention to explore the possibilities of establishing national parks and reserves in certain parts of the country.

POLICY (contd)

Because of the present problems on land, priority is based on finding solutions to them before independence in 1980. It is only then that a clear policy on national parks and reserves can be taken. However the present government places great importance on conferences such as this one to promote ideas and better solutions to these South Pacific countries such as ours, who are far behind in establishing national parks and reserves.

It is hoped that our country will benefit greatly from conferences such as this one, as we prepare for our future nationhood.

ENVIRONMENTAL EXPERT:

It is the intention of the Ministry of Natural Resources to seek advice from international organisations such as UNDP, for the recruitment of an environmental expert to be attached to the Ministry within the next twenty-four months. The work of this expert is to advise the government on environmental problems, and draft legislation for the protection of the country's environment. This is only a small beginning, however, it is very likely that one of the expert's major tasks will be to advise the government on the creation of national parks and reserves in certain parts of the New Hebrides or Vanuaaku.

(Discussion on the above paper appears at page 20 of Volume II of the proceedings)

SITUATION REPORT - NORTHERN TERRITORYPREAMBLE:

The Northern Territory with an area of 134,679,380 hectares occupies more than one-sixth of the Australian continent. It is about 1,609 kilometres long from its southern boundary at latitude 26° south to its northern coastline and is about 933 kilometres wide between longitude 129° and 138° east.

GEOGRAPHY:

The Northern Territory is an area of gentle to moderate relief, consisting mainly of plains which rise from sea level at the north coast to an altitude of about 2,300 feet near Alice Springs. The land then drops towards Lake Eyre in South Australia.

Several areas of steeply-sloping hilly mountainous country occur, especially in the north, the largest being the belt of rugged country extending from Arnhem Land south eastwards into Queensland, and the country contiguous with the Kimberley District of Western Australia. Although both are strongly dissected and of a rugged nature, the overall relief is relatively low, and the altitude nowhere exceeds 609 metres. In the southern half of the Territory rugged country occupies a smaller proportion of the total area. The largest mass is the Macdonnell Range system, which extends in an east - west direction across about half the width of the Territory between latitudes 23 and 24 degrees south. The highest mountain in the Territory (Mount Ziel 1,504 metres) is found in these ranges, together with a number of other peaks of about 1,220 metres. Average altitude is, however, generally less than 610 metres. Nowhere in the Territory are there mountains high enough to exert any appreciable influence on the climate.

The winding coastline of 1,672 kilometres is low-lying and flat. It is indented by numerous bays, inlets and estuaries of creeks and rivers. Many of the latter are navigable by shallow-draught vessels for considerable distances. Port Darwin is the only fully developed harbour, although ore loading facilities have been built at Milner Bay, Groote Eylandt and at Gove.

Most of the permanently flowing rivers and streams in the Darwin and Gulf District, have formed alluvial plains; these are most extensive in the Daly River area. The Roper River is deep enough to allow an access up to 128 kilometres from its mouth by a 203 tonne motor vessel, but the other major waterways, the Daly, Adelaide, Alligator and McArthur rivers are shallower most of the year.

CLIMATE:

Although more than four-fifths of the Territory lies north of the Tropic of Capricorn and the climate of the greater part is subject to the influence of the north-west monsoon, only the northern rivers section (Australian Meteorological District No. 1) of about 258,998 square kilometres, experiences an annual rainfall of between 508 millimetres and 1,524 millimetres and may properly be described as a monsoonal region. Southward from Daly Waters the annual rainfall declines from 635 millimetres to about 254 millimetres at Alice Springs and to little more than 127 millimetres at Finke. The annual rainfall over the great cattle-grazing area known as the Barkly Tableland, which extends from the centre of the Territory south-eastward into Queensland, varied from 305 millimetres to 510 millimetres. The inland plateau region of Central Australia surrounding Alice Springs also supports pastoral leases, but it is semi-arid and subject to periodic droughts. Because the rainfall is sporadic in nature some droughts have lasted for several years.

CLIMATE: (contd)

In the monsoonal region, there is no spring, summer, autumn or winter as in temperate regions. Instead the year has two main climatic seasons - the "wet" and the "dry". The wet season proper extends from late December to March, and the dry season from May to September. Of the remaining months October and November may be called pre-wet season months and April a post-wet season month. These months are transition periods between the two main seasons. The wet season is characterised by warm, humid and cloudy weather conditions with frequent heavy rains. Usually sporadic thunderstorms herald the "wet" and begin in October, increasing during November and December and continuing until about mid-April. During January, February and March periods of continuous wet weather are caused by moist airstreams which converge over North Australia from the north and west and several of these rainy spells, each continuing for up to a week, usually occur. They produce 90 percent of the annual rainfall during the first three months of the year. Streams of tropical air occasionally extend through the southern half of the Territory and bring beneficial rains to pastoral areas.

Between December and April occasional tropical cyclones occur off the Territory coast. When these cyclones move inland, associated rains cause extensive flooding of the river systems.

By early May, cool, dry, south-easterly winds from the high-pressure systems of the southern winter regions extend over the Territory, bringing warm days, cool nights, low humidity and few clouds. Although maximum day temperatures remain in the middle to high twenties over the monsoonal region, daytime temperatures in southern areas rarely exceed 24 degrees celsius between May and August. Cooler nights are experienced throughout the Territory during the dry season and frosts are quite common south of Tennant Creek. Dust storms associated with the northward passage of cold fronts may also occur over the Territory during the "dry" and bush fires burn out extensive areas as the grass which grows quickly during the monsoon season becomes highly combustible when dry.

POPULATION:

At the census in 1977 the population of the Northern Territory was 105,500. This represented .75 of 1% of the Australian Total.

From earlier figures (1971) it can be seen that some 20% of Australia's Aboriginal population live in the Territory. This represents some 23,380 people and only the states of New South Wales and Queensland have larger populations of people claiming to be aboriginal.

A significant addition to the total Territory population is that of tourists. In 1977-78, there were 224,620 tourists who made visits and an 8.5% growth rate in tourist numbers is projected for 1978-79.

AREAS RESERVED:

At 30 June 1978 a total of 48 areas covering 5,172,476 hectares had been dedicated for the purposes of creating National Parks, Historical Reserves, Conservation Reserves, Wildlife Sanctuaries and Nature Parks.

Brief details of areas controlled are:-

Alice Springs Telegraph Station Historical Reserve (445.3 hectares)

Situated 4 km north of Alice Springs the "Old Telegraph Station" is closely linked with the history of Central Australia. The first buildings were constructed in conjunction with the erection of the Overland Telegraph Line which was completed in 1872. Buildings are being restored and further work on recreating the historical surroundings is proposed.

Alice Springs Telegraph Station Historical Reserve (contd)

The reserve is used as a recreation area for the people of Alice Springs (population approx. 14,000).

Alligator Rivers Wildlife Sanctuary (375,702 hectares)

Included in this area is the Woolwonga Wildlife Sanctuary.

The area is exceptionally rich in fauna and incorporating diverse land forms has a varied flora.

Uranium mining with all of its attendant construction works is proposed in the region.

Present indications are that this Sanctuary will become the Kakadu National Park with title to the land being held by Aboriginal people, the park being dedicated to the Australian National Parks and Wildlife Service, and management becoming the joint responsibility of the Northern Territory and Australian Governments under a scheme yet to be finalised.

Anna's Reservoir Conservation Reserve (84.93 hectares)

Watering point found by early explorer J. McD. Stuart and used by construction parties on the Overland Telegraph.

Arltunga Historical Reserve (4,893 hectares)

Reserve surrounding the ruins of a gold mining town dating from 1887. Minimal restoration has been carried out, but Ranger supervision has increased and archaeological investigations are in progress.

Attack Creek Historical Reserve (2,200 M<sup>2</sup>)

Memorial to explorer John McDouall Stuart.

Berry Springs Nature Park (247.1 hectares)

Natural springs and swimming pools with clear water surrounded by grassed picnic areas.

Central Mount Stuart Historical Reserve (2,592 M<sup>2</sup>)

The geographical centre of Australia. Memorial to explorer John McDouall Stuart.

Chambers Pillar Historical Reserve (340.1 hectares)

Spectacular sandstone pillar used as a landmark by early explorers.

Cobourg Peninsula Flora and Fauna Reserve (196,659 hectares)

Coastal reserve incorporating good examples of estuarine flora. The area includes the sites of early settlements long since abandoned.

Corroboree Rock Conservation Reserve (7.28 hectares)

Scenic area with significance to early Aboriginals.

Cutta Cutta Caves Nature Park (258.9 hectares)

Warm limestone caves which have been extensively developed for tourist use.

Daly River Nature Park (59.96 hectares)

Recreation reserve on the banks of the Daly River. Popular for camping, fishing and boating.

Daly River Wildlife Sanctuary (258,933 hectares)

Situated approx. 400 km. south-west of Darwin, this sanctuary was proclaimed in 1964 over portion of the Daly River Aboriginal Reserve. Under the provisions of the Aboriginal Land Rights Act the land reverts to Aboriginal ownership with provision for a possible agreement on joint management for conservation purposes.

Devils Marbles Conservation Reserve (1,828 hectares)

Hundreds of rounded granite boulders often perched precariously one on top of the other are the main feature of this reserve.

Douglas Hot Springs Nature Park (3,107 hectares)

Thermal springs.

Edith Falls Nature Park (162.7 hectares)

A small lake fed by waterfalls on the Edith River north of Katherine.

Ellery Creek Big Hole Nature Park (1,766 hectares)

Permanent deep water hole with colourful rock formations in the Macdonnell Ranges.

Emily and Jessie Gaps Nature Park (695.2 hectares)

Scenic and recreation areas near Alice Springs.

Escape Cliffs Historical Reserve (147.7 hectares)

The site of an early settlement on the coast north-east of Darwin.

Ewaninga Rock Carvings Conservation Reserve (6.09 hectares)

A petoglyph site with rock carvings which may be over 10,000 years old.

Finke Gorge National Park (45,856 hectares)

This reserve surrounds the Finke River in Central Australia for a distance of approximately 24 kilometres and is, in the main, retained as a wilderness area. It includes Palm Valley in which relict forms of flora are found.

Fort Wellington Historical Reserve (89.7 hectares)

Site of the second military settlement on Cobourg Peninsula between 1827 and 1829.

Glen Helen Gorge Nature Park (386 hectares)

Spectacular rock formations where the Finke River passes through the Macdonnell Ranges.

Gregorys Tree Historical Reserve (2.02 hectares)

Site of explorer A.C. Gregory's camp in 1856. Identified by a carved Baobab tree.

Heavitree Gap Police Station Historical Reserve (4,046 M<sup>2</sup>)

A restored police station dating from 1890.

Henbury Meteorite Conservation Reserve (16.18 hectares)

A group of thirteen meteorite impact craters.

Howard Springs Nature Park (283.2 hectares)

Natural spring and swimming pool, tropical rain forest and recreation area for the town people of Darwin.

Illamurta Springs Conservation Reserve (129.5 hectares)

An abandoned police outpost in the James Range.

John Flynn's Grave Conservation Reserve (3363 M<sup>2</sup>)

Grave site of the founder of the Flying Doctor Service.

John Flynn Historical Reserve (4755 M<sup>2</sup>)

Historical memorial.

Katherine Gorge National Park (180,190 hectares)

The main features of this park are the dramatic gorges with large expanses of water along the Katherine River.

Katherine Low Level Nature Park (104.39 hectares)

Picturesque recreation area on the banks of the Katherine River.

Kintore Caves Nature Park (423.3 hectares)

Limestone caves north of Katherine of anthropological importance as well as scenic value.

Mataranka Pool Nature Park (4.04 hectares)

Thermal spring and pool in rainforest.

Murgon Wildlife Sanctuary (310,719.7 hectares)

Located approximately 300 kilometres north-east of Darwin this sanctuary was proclaimed over portion of an Aboriginal Reserve. The whole sanctuary is managed jointly for Aboriginal, Wildlife and Forestry purposes.

N'Dhala Gorge Nature Park (501.4 hectares)

A steep gorge in the East Macdonnell Ranges which is the site of extensive ancient rock engravings.

Ormiston Gorge and Pound National Park (4655 hectares)

This national park protects some of the most spectacular and colorful scenery in the West Macdonnell Ranges.

Redbank Nature Park (1295 hectares)

A gorge and narrow chasm of outstanding scenic value in the West Macdonnell Ranges.



Ryan Well Historical Reserve (2.39 hectares)

The reserve includes a well and original homestead established before the turn of the century.

Serpentine Gorge Nature Park (517.9 hectares)

High, red, rock walls, cool waterholes and a narrow chasm with associated flora and fauna are protected by this park.

Simpsons Gap National Park (30,950 hectares)

Macdonnell Range country with the high walls of the Simpsons Gap through which the Roe Creek flows as its main feature.

Stuarts Tree Historical Reserve (3.96 hectares)

The site from which J. McD. Stuart reached the sea after the first successful crossing of the continent in 1862.

Tanami Desert Wildlife Sanctuary (3,752,900 hectares)

Proclaimed in 1964 this is the largest Wildlife Sanctuary in the Northern Territory. Until recent years it has been largely protected by its relative isolation, harsh terrain and climate. The increasing number of four wheel drive vehicles in common use are changing this security.

An Aboriginal land claim has been granted over the area and if sanctuary status is to be maintained, a leasing arrangement must be made with the Aboriginal owners.

Trephina Gorge Nature Park (1,771 hectares)

East Macdonnell Range rock scenery, large sandy creek, picnic areas and waterholes.

Uluru (Ayers Rock - Mt. Olga) National Park (126,132 hectares)

This area has been declared a national park under the (Commonwealth) National Parks and Wildlife Conservation Act. Day to day management is still the responsibility of the Territory Parks and Wildlife Commission with funds provided by the Australian National Parks and Wildlife Service.

During the 1977-78 year, 66,354 people visited this park which is located far from major population centres and a continuing growth in visitor numbers is expected.

An Aboriginal land claim was lodged over the national park during early 1979.

Ayers Rock and the Olgas rising respectively 348 and 545 metres above the surrounding plains are among Australia's major tourist attractions.

Umbrawarra Gorge Nature Park (971.8 hectares)

Gorges and permanent water 25 km. north-west of Pine Creek.

Victoria Settlement Historical Reserve (120.6 hectares)

Site of the third military garrison set up on the north coast. Abandoned 1849.

Waterfall Creek Nature Park (236.1 hectares)

A high waterfall with a permanent pool extending over an area of approx. 2 hectares at its base.

Yarrawonga Zoo (2 hectares)

A small fauna park 20 km. from Darwin displaying animals indigenous to the "Top End" of the Territory.

LEGISLATION:

National Parks and Equivalent Reserves in the Northern Territory are controlled in the main by the application of legislation passed by the Northern Territory Legislative Assembly. Under the Territory Parks and Wildlife Conservation Act, all of the areas listed above with the exception of the Uluru (Ayers Rock-Mt. Olga) National Park.

It is considered to be anomalous and generally unsatisfactory that two pieces of legislation and two administrations are involved in the same area in this one part of Australia.

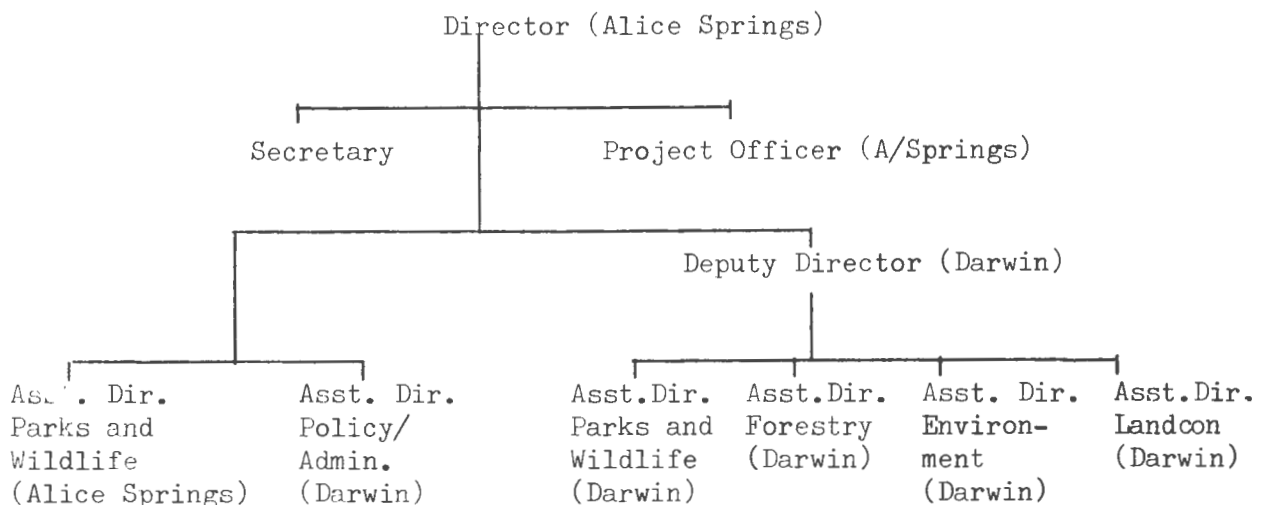
Various other legislation such as the (Commonwealth) Aboriginal Land Rights (Northern Territory) Act affect national parks in the Territory.

ADMINISTRATION:

The policy of controlling authority in the Territory is generally to administer the areas for the purposes for which they have been set aside and to encourage the addition of suitable areas so that ecologically viable units are preserved.

The Territory Parks and Wildlife Commission as presently constituted also administers forestry, land (soil) conservation, environmental and wildlife matters in the Northern Territory.

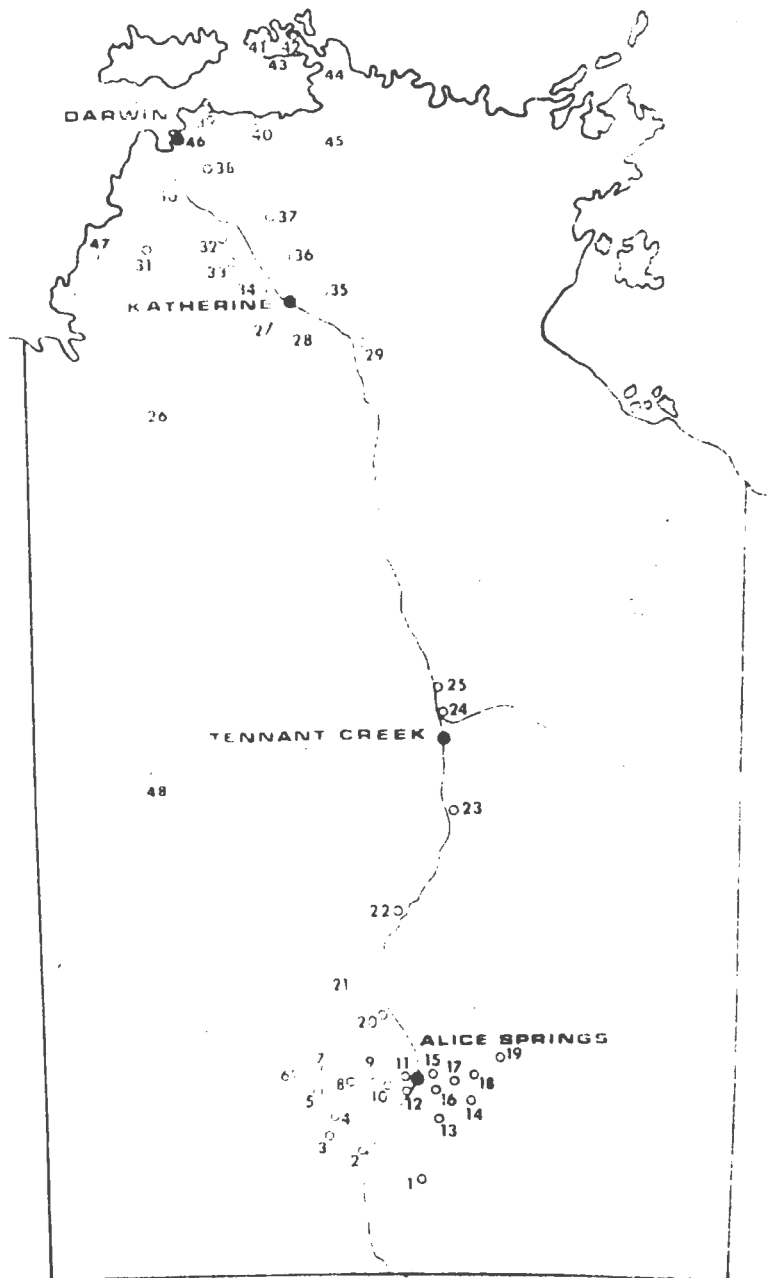
The lines of organisational control which reflect also the regionalism aspects are as follows:-



(Discussion on the above paper appears at page 22 of Volume II of the proceedings)

NATIONAL PARKS, RESERVES AND SANCTUARIES CONTROLLED  
BY TERRITORY PARKS AND WILDLIFE COMMISSION

1. Chambers Pillar
2. Henbury Meteorites
3. Illamurta Springs
4. Finke Gorge
5. Glen Helen Gorge
6. Redbank Gorge
7. Ormiston Gorge and Pound
8. Serpentine Gorge
9. Ellery Creek
10. Simpsons Gap
11. Heavitree Gap Police Station
12. John Flynn's Grave
13. Ewaninga Rock Carvings
14. N'Dhala Gorge
15. Alice Springs Telegraph Station
16. Emily and Jessie Gaps
17. Corroboree Rock
18. Trepghina Gorge
19. Arltunga
20. Ryans Well
21. Anna's Reservoir
22. Central Mt. Stuart Memorial
23. Devils Marbles
24. John Flynn's Memorial
25. Attack Creek Memorial
26. Gregorys Tree
27. Katherine Low Level
28. Sixteen Mile Caves
29. Mataranka Pool
30. Berry Springs
31. Daly River
32. Douglas Hot Springs
33. Umbrawarra Gorge
34. Kintore Caves
35. Katherine Gorge
36. Edith Falls
37. Waterfall Creek
38. Howard Springs
39. Escape Cliffs
40. Stuarts Tree
41. Victoria Settlement
42. Fort Wellington
43. Cobourg Penninsular
44. Murgarella Sanctuary
45. Alligator Rivers Sanctuary
46. Murrumbidgee Zoo
47. Daly River Sanctuary
48. Tanami Desert



SITUATION REPORT - NEW ZEALANDPREAMBLE

We, in New Zealand, are deeply aware of the benefits available to us from our natural and cultural environment. We are richly endowed with areas of public land set aside to preserve natural and cultural features and to provide visual pleasure and recreational outlets for the people. This report briefly outlines the situation in this field in New Zealand.

GEOGRAPHY

The main land area of New Zealand, located in the south-west section of the Pacific Ocean between latitudes  $34^{\circ}$  and  $48^{\circ}$  south and longitudes  $166^{\circ}$  and  $179^{\circ}$  east, is similar in size to the British Isles and Japan. Containing an area of 26.9 million hectares, it comprises three main islands - North, South and Stewart, separated by relatively narrow straits - with adjacent islets and a group called Chatham Islands 850 kilometres to the east of Lyttelton in the South Island. Included within the administrative boundaries of New Zealand are many outlying and sub-antarctic islands, including the Kermadec Group, Campbell Island and the Auckland Islands.

With less than one quarter of the land surface lying below the 200 metre contour, one of New Zealand's most striking physical characteristics is its mountainous nature, particularly in the South Island, where the massive alpine chain, known as the Southern Alps and which attains its greatest height in Mount Cook (3,764 metres), runs almost the entire length of the Island. Luxuriant forests, swift flowing rivers, glacial lakes, both large and small, the rugged grandeur of the fiords and sounds, together with sandy beaches, give infinite variety to the scene. These attractions offer opportunities for young and old, the general public and tourists alike, to tramp, climb, ski, camp and picnic as well as to fish and hunt introduced species.

CLIMATE

Among the main factors which influence the New Zealand climate are first its position in the midst of a vast water area and secondly the climate and topography of the country itself. Lying as it does in the "Roaring forties" latitude, the wind flow generally is from a westerly quarter in all seasons but this varies with its passage across the mountainous terrain which extends from south-west to north-east through the length of the country.

The mountain features also play a part in controlling the distribution of rainfall, as the highest falls occur where the mountains are exposed to the direct sweep of the westerly and north-westerly winds. For the greater part of the country the rainfall range is between 600 and 1500 mm per annum, but as little as 300 mm falls in a small area of Central Otago to over 7000 mm in some areas of the Southern Alps. In much of the forest covered mountainous and unoccupied lands of both Islands, rainfall exceeds 2500 mm per year. For a large part of the country the rainfall generally is spread fairly evenly through the year.

Mean temperatures at sea level decrease from  $15^{\circ}\text{C}$  in the far north to  $12^{\circ}\text{C}$  around Cook Strait region, then to about  $9^{\circ}\text{C}$  in the south. The difference between mean temperature of the warmest and coldest months varies between about  $8^{\circ}\text{C}$  and  $14^{\circ}\text{C}$ . January and February are the warmest months of the year and July the coldest.

CLIMATE (contd)

A large portion of the country is favoured with at least 2000 hours of bright sunshine annually. The sunniest areas are located around Blenheim, Nelson and Whakatane where the average duration is in excess of 2400 hours.

POPULATION

New Zealand's total population now slightly exceeds 3.1 million (31 December 1977) in equal proportions of male and female. This figure includes approximately 275,000 Maoris and in excess of 61,000 Pacific Islanders.

Nearly three-quarters of the population resides in the North Island, with a large concentration in the Auckland area. Over 80% of New Zealand's population is located in urban areas.

GOVERNMENT POLICY

New Zealand's internal aim is to pursue energetically the policy of preservation and conservation of the environment providing for a variety of outdoor pursuits and natural unspoilt environment in a complex of reserves and national parks set aside for the proper use, benefit and enjoyment of the public today and in perpetuity. Internationally, its policy is to engender co-operation in the field of conservation of outstanding natural and historic areas as part of the world heritage, through its experience and financial aid, with emphasis in the South Pacific region.

ENVIRONMENTAL LEGISLATION

The main pieces of legislation providing for the setting aside of land for public use, its administration, management and control, are the Land Act 1948, the National Parks Act 1952 and the Reserves Act 1977. These Acts are administered in the Department of Lands and Survey.

The Land Act, inter alia, enables land owned by the Crown and foreshore areas to be reserved for any purpose, e.g. recreation, nature, scientific, scenic, historic etc., which is desirable in the public interest. The reserves are then administered in terms of the Reserves Act. Crown owned land may be constituted national park in terms of the provisions in the National Parks Act. These pieces of legislation also provide for the acquisition of private land - purchase, lease or gift - for reserves for any purpose or for national park.

In the case of national parks and scenic reserves which hold a special place in New Zealand's open space system, preservation is for the purpose of retaining areas that contain scenery of "distinctive quality or natural features so beautiful or unique" or possess "such qualities of scenic interest" that their preservation is "desirable" and "in the national interest" for the "benefit and enjoyment of the public". They are preserved as far as possible in their natural state while "all native flora and fauna ..... shall, as far as possible, be preserved".

AREAS RESERVED

A total area of some 2.6 million hectares has been permanently reserved as national parks, scenic, historic, recreation, nature, scientific and allied reserves. This represents about one tenth of the country's land area.

AREAS RESERVED (contd)

With an area of 2,152,123 hectares, New Zealand's 10 national parks comprise the bulk of the reserved areas. They have a special place in New Zealand's open space system - in serving their true purpose they play a complementary role in a diverse system within which there is provision for alternative opportunities for enjoying open air recreation, beautiful scenery and the contemplation of nature and wildlife.

Public reserves, in all their diversity, not only complement the national park system in New Zealand but have the potential to enhance the quality of life for all New Zealanders. The aim of reserves policy is the establishment of a New Zealand-wide reserves system to preserve a representative range of our country's natural and historic features, and to provide a range of recreational opportunities capable of meeting the needs of all New Zealanders.

To help achieve these aims, a variety of surveys are proceeding to identify what New Zealand already possesses in parks and reserves, where the system needs expansion, and how best to manage them to take advantage of their conservation and/or recreation value.

The following is a summary of the classes of reserves administered under the Reserves Act 1977 :

Nature Reserves, of which there are 87 with an overall area of 191,776 hectares, are established for the absolute protection and preservation, in perpetuity, of indigenous flora and fauna or natural features that are of such rarity, scientific interest or importance, or so unique that their protection is in the public interest. Public entry to nature reserves is strictly regulated by permit.

Scientific Reserves, of which there are 13 with an overall area of 1233 hectares, have the purpose of protecting and preserving, for scientific study, research and education, biological and physical features of special importance or interest. An important provision for scientific reserves is that which enables, under Ministerial consent, manipulation of the reserve for experimental purposes or to gain further scientific knowledge. Restrictions on public entry may be imposed over all or part of a scientific reserve.

Historic Reserves, of which there are 101 with an overall area of 1,716 hectares, protect and preserve in perpetuity places, objects and natural features of historic, archaeological, cultural and educational interest.

Scenic Reserves, of which there are 1,102 with an overall area of 303,642 hectares, protect and preserve areas possessing such qualities of scenic interest, beauty, or natural features or landscape that their protection and preservation are desirable in the public interest.

Government Purpose Reserves are provided for various central Government purposes such as defence, lighthouse, police stations, post offices, courthouses.

Local Purpose Reserves are provided for various local Government purposes, which are usually administered by local authorities. These are set apart for community, social or other local purposes.

Apart from providing the philosophy and management framework for the administration of the above reserves, the Reserves Act contains various provisions designed as alternatives to outright purchase. One such provision empowers the Minister for Lands or any local authority to negotiate with land owners for a "conservation covenant" for the management of any privately owned land which can be managed so as to preserve the natural environment or landscape amenity, or wildlife or freshwater

Local Purpose Reserves (contd)

life, or marine life habitat. This provision is mainly appropriate in cases where there are particular landscape values worth preserving (perhaps an area of bush, or wetland area, or traditional landscape).

Where private land has specific reserve values, but the owner wishes to retain the ownership, he may enter into an agreement with the Minister for Lands to have the land administered as "Protective Private Land". This provision enables the land to be administered and protected under the Reserves Act according to the appropriate reserve philosophy without the land passing out of private ownership.

Farm Parks. These are a relatively new concept enabling contrived agricultural development and farming where it is deemed to be a proper use of the land and is consistent with the prime object of providing recreational areas and preserving natural and historic values. In an increasingly urbanised world farm parks offer an excellent opportunity to bring town and country closer together by allowing people to see farming operations at first hand. The total area in farm parks is 19,904 hectares.

Maritime Parks. There are three constituted, two in the North Island (Bay of Islands and Hauraki Gulf) and the other in the South Island (Marlborough Sounds). These provide for the co-ordinated management of existing and proposed reserves, including appropriate island reserves within the coastal region.

New Zealand Walkways. Allied to the establishment and administration of New Zealand's national parks and reserves system is the New Zealand walkway system. The New Zealand Walkways Act was passed in 1975 with the "aim of establishing walking tracks over public and private land so that the people of New Zealand shall have safe, unimpeded foot access to the countryside for the benefit of physical recreation as well as for the enjoyment of the outdoor environment and the natural and pastoral beauty and historical and cultural qualities of the areas they pass through".

So far 19 walkways with a combined length of 165 km have been officially opened. A further 18 walkways are expected to be opened in the coming year.

ADMINISTRATION

The National Parks Act, in setting out the original framework for the management of national parks, established the National Parks Authority as an independent statutory body.

The Act also provides for the appointment of national park boards to administer, manage and control national parks (under the general direction and oversight of the Authority).

The Department of Lands and Survey with its expertise in land management and preservation of the natural environment, supplies the necessary back-up servicing for the national park system to enable it to run smoothly and effectively. It provides the necessary staffing; the Director-General of Lands is the Chairman of the Authority and Commissioners of Crown Lands are the Board Chairmen where there is a park in their district. Planners, landscape architects, scientists, officers for management and administration, treasurers and rangers are provided by the department. Through its recruitment and training of rangers in particular it provides the resources for effective park management and service to the public.

Scenic, recreation, historic and other reserves and maritime parks are controlled and managed either by boards, by local authorities or by the Commissioner of Crown Lands for the Land District in which the area is located. In some instances, the Department of Lands and Survey also provides the necessary staffing and back-up servicing of some of the boards.

#### CONSERVATION AND ENVIRONMENTAL AGENCIES

The Nature Conservation Council Act passed in 1962 provided for the establishment of the Nature Conservation Council. Although the Department of Lands and Survey provides the administrative services for the Council, it is independent of any government departmental policy jurisdiction. Its function primarily is to act as an advisory body to Government on scientific and technical aspects of nature conservation and any other matters affecting nature conservation which is defined in the Act as "the preservation of the native flora and fauna and the natural features and natural beauty of New Zealand". In this regard it inquires into the effect of proposed public works on any aspect of nature conservation.

A Physical Environment Conference held in 1970 led to the establishment of the Environmental Council, a 15 member body of officials and private citizens, at present attached to the Commission for the Environment. An advisory body, the Environmental Council's role is broadly to monitor the effectiveness of existing legislative measures affecting the environment and to make recommendations on changes or on new legislation. It maintains a close liaison with the Nature Conservation Council.

Subsequent to the establishment of a Ministerial portfolio for the environment early in 1972, a Commission for the Environment was set up as a small unit independent of any Government department to serve as a clearing-house for environmental issues, particularly involving central government activity.

One of its major tasks is in auditing environmental impact reports prepared by agencies, initiating schemes which are Government projects or involve Government money or land.

The Commission investigates public complaints addressed to it or referred to it from the Minister, and again liaison with the Nature Conservation Council is necessary in an endeavour to reduce overlap.

The Queen Elizabeth the Second National Trust was established by Act of Parliament in December 1977 to encourage and promote the provision, protection and enhancement of open space for the benefit and enjoyment of the people of New Zealand. The Trust was set up to fill a growing need for an independent body to oversee the development of an overall open space plan and policy. The Trust has the authority to negotiate open space covenants and acquire open space land in its own name.

(Discussion on the above paper appears at page 23 of Volume II of the proceedings).



SITUATION REPORT - TASMANIAGEOGRAPHY:

Tasmania is a mountainous island, and with its offshore islands extends from 39° 12' to 43° 39' south latitude and from 144° 36' to 148° 23' east longitude. The area of the State, including the lesser islands is 68,300 square kilometres, just under one third the size of Victoria. The State has jurisdiction over islands from the Rodondo Group in the north, which are only about 10 km from Wilsons Promontory to subantarctic Macquarie Island in the southern latitudes known as the "furious fifties".

Although the Australian Pilot Vol. II describes Tasmania as "probably the most thoroughly mountainous island on the globe" it is, however, one of rapidly changing scenery characterised by diverse physiographic regions. A high dolerite-capped Central Plateau, formerly glaciated and covered by numerous lakes as well as snow for much of the year, is flanked to the west by a high dissected plateau comprising numerous peaks and broken ridges. This mountainous belt extends from the central north down to the south coast. The high dissected plateau is bound by a series of mountain ranges running parallel to the west coast. Throughout the entire length of the west coast, an uplifted peneplain deeply dissected by rivers extends from Port Davey in the far southwest to the Woolnorth and Stanley areas in the far northwest. A similar coastal platform extends over the northeast coastal area and is characterised by sandy soils covered by woodland vegetation and numerous swamps and dunes. South of the northwest coastal towns of Burnie and Devonport lay the northwest plateau, the southern parts of which are heavily forested. South and east of Launceston, stretches a broad shallow valley, largely developed for pastoral holdings. The northeast highlands and Ben Lomond Horst carry heavy forests with alpine heath on the Ben Lomond summit plateau. The southeast of the State comprises a low dissected dolerite plateau which has been developed for agriculture but still retains diminishing tracts of Eucalypt dry sclerophyll open-forest.

CLIMATE:

Tasmania has a temperate maritime climate characterised by mild winters and cool summers. Being centred on the 42nd parallel, the island's west coast bears the full force of the "Roaring Forties". The uplift of the moist westerly airstream over the mountain ranges in the western half of the island produces heavy rainfall in this half with some areas receiving over 250 cm per annum. Areas in east and central east Tasmania generally experience much lower rainfall, in some places less than 50 cm. There is no well-defined seasonality in rainfall, although winter rainfall is heaviest in west and northwest regions.

Mean January temperatures range between 9 - 19°C, and those for July, between 0.5 and 10.5°C. The coolest areas are the large central and smaller northeast plateaux; the warmest, are the coastal regions, particularly the northern and eastern. Extreme temperatures range between 15° to 3°C.

POPULATION:

The present Tasmanian population of 407,000 is less than any other State but greater than that of the Northern Territory and the Australian Capital Territory.

Although Hobart and Launceston are the most populous centres, the total population is not heavily concentrated into one or two large cities as on the mainland, but is spread instead, through a large number of minor towns.

POPULATION (contd)

The northwest coast is Tasmania's most urbanised region. The southeast, midlands, east coast and north coast regions are dominantly rural areas with scattered population centres. Little agriculture is practised in the west where the population are concentrated in centres concerned with tourism, mining or hydro-electric developments. Most of the west coast is unpopulated. In the milder climate along the east coast, rural and fishing based towns are also developing as tourist resort centres.

POLICY:

The Tasmanian National Parks and Wildlife Service aims to acquire and manage land for the conservation of ecologically viable and representative samples of ecosystems in the state including all the major plant alliances. As well, land is acquired to conserve individual plant species which may be endangered, specific sites and buildings of historical significance and sites of aboriginal archaeological significance. Land is defined to include land covered by the sea or other waters, and the part of the sea or those waters covering that land, thereby enabling the Service to create marine reserves.

The Service actively seeks to protect all forms of native wildlife from depletion or extinction. Certain species may be hunted within the constraints of permits and seasons while many species are wholly protected. A system of nature reserves contributes to the protection of nesting and breeding and occupation sites of a number of species such as the fur seal. In the case of the formerly endangered Forester kangaroo, a large National Park has been created in the northeast of the state specifically for its protection.

Recognising that public awareness of the importance of conservation of nature is the best future safeguard for our Reserves, the Service is implementing a concerted education and interpretation programme.

ENVIRONMENTAL LEGISLATION:

Several Tasmanian Acts are concerned with the environment. The most relevant Acts in the context of this Conference are:

1. The National Parks and Wildlife Act of 1970 which repealed the Animals and Birds Protection Act 1928 and the Scenery Preservation Act 1915 and made fresh provisions with respect to the establishment and management of National Parks and other reserves and for the conservation of the flora and fauna of the State: and
2. The Aboriginal Relics Act 1975.

A Director, appointed by the Governor and accountable to the Minister responsible for National Parks and Wildlife is the managing authority for all its reserved land, apart from those Conservation Areas managed jointly with other individuals or authorities.

The Director is responsible for:

- i) the keeping under review of the setting aside of land for nature conservation purposes;
- ii) research activities connected with flora and fauna conservation;
- iii) education of the public and dissemination of information in matters of flora and fauna conservation generally;

ENVIRONMENTAL LEGISLATION (contd)

- iv) provision of relevant information to advisory committees;
- v) preparation and review of management plans for reserved areas;
- vi) enforcing national park and wildlife regulations;
- vii) acquisition or reservation of land for the protection of occupation sites, cultural relics sites, and art sites;
- viii) the management of aboriginal sites; and
- ix) the registration of collections of aboriginal relics, and the acquisition and protection of aboriginal relics.

Other Acts

The Environment Protection Act 1973 is administered by a separate Department and is concerned with assessment and control of noise, air and water pollution.

The Lands Department have interpreted their Crown Lands Act 1976 as a mandate for establishment of a system of Regional Parks and Protected Areas on certain Crown Lands.

Under the Forestry Act 1977, the Forestry Commission have created a series of minor reserves, usually consisting of picnic facilities and centred around some minor feature, such as a small waterfall or fern gully.

Both the Lands Department and Forestry Reserves are orientated more toward recreation rather than nature conservation. However, the Protected Areas of the Lands Department contain certain areas which are managed with a view to protecting the natural environment whilst permitting a variety of other uses. The Forestry Commission also have a small but increasing number of reserves planned to conserve specific ecosystems, particularly rare tree species.

AREAS RESERVED

The areas managed by the Tasmanian National Parks and Wildlife Service and mentioned in this report are defined as follows:.

State Reserves

- National Parks - large natural areas (generally more than 4,000 hectares) which are ecologically viable and naturally significant.
- Nature Reserves - areas containing special natural attributes, and usually undisturbed, which are reserved for their intrinsic value to scientific investigation and knowledge.
- Historic Sites - the sites of buildings, objects, monuments or events of historical significance.
- State Reserves - areas of generally less than 4,000 hectares which have outstanding scenic values, usually preserving a particular natural feature such as a cave, gorge, hot spring, waterfall or geological interest site.

State Reserves (contd)

- Aboriginal Sites - areas reserved to protect occupation, cultural relics, and art sites. These areas of important cultural heritage are managed for scientific investigation and public education. The Aboriginal Relics Act 1975 makes provision for the reservation of protected sites but these do not have the same legal status as State Reserves.
- Games Reserves - tracts of natural environment where controlled hunting of game species is permitted but where the habitat and other wildlife is protected. Game Reserve Regulations are presently being drafted.

CONSERVATION AREAS

- some Conservation Areas are either completely controlled and managed by the Service or in association with the owner or another managing authority. These are areas designed primarily for wildlife conservation, the habitat being protected only by virtue of a management plan. They also include areas which have been acquired by the Service and await proclamation and gazettal as additions to National Parks, State Reserves, Nature Reserves, Aboriginal Sites and Historic Sites. These Conservation Areas can be sub-divided into three categories:
- 1) Wildlife Sanctuaries under National Parks and Wildlife Service management and acquired areas,
  - 2) Muttonbird Reserves which are managed by the Service, and
  - 3) Wildlife Sanctuaries under joint management with other authorities.

RESERVES:

|  |                  |
|--|------------------|
| By the 10th April, 1979 the Service controlled -   |                  |
| 12 National Parks  | 623,471 hectares |
| 53 State Reserves  | 29, 702 hectares |
| 24 Historic Sites  | 499 hectares     |
| 27 Nature Reserves   | 28,136 hectares  |
| 3 Aboriginal Sites   | 1,242 hectares   |
| Total  | 683,127 hectares |
| 29 Wildlife Sanctuaries and<br>acquired areas under<br>National Parks and Wildlife<br>Service management | 6,790 hectares   |
| 10 Muttonbird Reserves   | 9,637 hectares   |
| 38 Wildlife Sanctuaries under joint<br>management between the Service<br>and other authorities           | 329,098 hectares |
| Total  | 345,525 hectares |

## Priorities

Priorities of new acquisition are multifarious. The Service uses information gained from research within and without the Service to determine priorities in acquiring land for specific purposes. For example research has recently been initiated by the Service to determine priorities and guidelines for its acquisition of Historic Sites. Features which have been especially sought for conservation (all of equal priority) are: offshore islands especially bird or seal breeding sites, sites of prehistoric significance, caves, coastal land and land for the consolidation of present reserves. The Service is also seeking to acquire a large, ecologically viable reserve in dry sclerophyll forest in Eastern Tasmania. This habitat is being altered by extensive woodchipping activity.

## EASTERN TASMANIA:

This region offers a wide variety of historical and natural attractions and because of its relatively mild climate, lures tourists, day-trippers and walkers in large numbers.

Tasman Peninsula is rich in Tasmania's earliest European history. The Port Arthur Historic Site is probably Tasmania's most heavily visited tourist attraction. The expenditure by the Service on works, research, restoration and interpretation has been large. The site received nearly 200,000 paying visitors alone in the 1977/78 financial year. The Coal Mines Historic site near Saltwater River is contiguous with the Lime Bay Nature Reserve, home of several rare species, including the beautiful hairstreak butterfly.

The Cape Pillar, Cape Raoul, Brown Mountain-Remarkable Cave and the Tasman Arch State Reserves display magnificent coastal scenery with cliffs often exceeding 200 metres. These reserves protect extensive coastal heath plant communities.

Impressive coastal scenery is not confined to the Tasman Peninsula however, and Fluted Cape State Reserve and Labillardiere State Reserve on Bruny Island, as well as Freycinet and Mt. William National Parks, all contribute their own special appeal to the State Reserve system.

Scenic beauty though, should not completely divert attention from the more important nature conservation values of these Reserves. Mt. William National Park is the only protected stronghold of the Forester Kangaroo (Macropus giganteus). The Bruny Island Reserves contain heath with rare plants endemic in Tasmania.

Maria Island combines history with natural beauty attracting thousands of campers and day visitors during the summer. A complete survey of the birds of the island has been published by the Service and a survey of the vegetation is in press as a Wildlife Division Technical Report.

Ben Lomond National Park, as well as a preserve for alpine flora, is the most popular snow skiing area in Tasmania.

Asbestos Range National Park on the north coast caters for family oriented recreation and is easily accessible from Launceston and Devonport.

There are important Historic Sites reserved in Eastern Tasmania including the site of the first European settlement at Risdon Cove. This is one of the earliest settlement sites (1803) in Australia to remain substantially unmodified and is being transformed into an educational and tourist centre more worthy of its cultural significance. Extensive archaeological research is being carried out at the site and historical research is providing a basis for visual materials for displays in the innovatively constructed visitors centre. The site is to be opened in September this year.

EASTERN TASMANIA (contd)

Entally House Historic Site near Launceston is an old homestead on 34 hectares of the original property. This heavily visited site attracted nearly 70,000 paying visitors in the 1977/78 financial year.

CENTRAL TASMANIA:

This highland region contains one of Tasmania's best known reserves, Cradle Mountain-Lake St. Clair National Park which covers 126,205 hectares--the second largest National Park in the State. So popular is this Park in summer that the Service is supporting research into the effects of foot traffic on the vegetation in this area with a view to better long-term management.

The boundaries of the Cradle Mountain-Lake St. Clair National Park have been extended twice in the past two years to protect scenery and features on its periphery. An important related development was the gazettal in December 1978 of the Central Plateau Wildlife Sanctuary, covering 40,000 hectares including spectacular scenery such as the Walls of Jerusalem and covering a wild plateau surface dotted by thousands of lakes.

BASS STRAIT ISLANDS:

Tasmania has jurisdiction over Bass Strait south of 39° 12' S. South of this parallel are scattered numerous rocks and islands. Islands are of particular ecological significance and the Service has proclaimed Nature Reserves to protect islands or rocks either on ecological grounds for scientific reference areas, or which are important seabird and seal colonies.

Ecological reference areas include Rodondo Island, Curtis Island, Three Hummock Island, Chappell Islands and Lavinia Nature Reserves.

Nature Reserves proclaimed to protect seal colonies are exemplified by Bass Pyramid, Judgement Rocks, North-east Islet, Reid Rocks, Tenth Island, West Moncoeur Island and Wright Rock Nature Reserves.

Strzelecki National Park of 3,946 hectares in the Southwest of Flinders Island is a rugged and spectacular granite mountain mass of high scenic and nature conservation value. A rainforest occurs about the summits of the Strzelecki Peaks, this vegetation type being rare on any of the Bass Strait Islands.

The Muttonbird Reserves (Conservation Areas) allow the Service to protect both the environment as well as the basic resource of the "birding" industry.

Southwest of Cape Barren Island, the "Sydney Cove" Historic site reserves the site of the wreck of the "Sydney Cove" which foundered off Preservation Island in 1797. Subsequent rescue operations led to the discovery of Bass Strait. The National Parks and Wildlife Service was involved in an initial survey of the wreck in October, 1977. This revealed the potential for significant archaeological research, and led to the Service arranging for a major feasibility survey under the direction of a maritime archaeologist from the Western Australian Museum. In conjunction with the Queen Victoria Museum, the Service is appointing a conservator to properly care for relics such as those from the "Sydney Cove".

NORTH WEST TASMANIA:

Rocky Cape National Park (3,000 hectares) is the largest reserve in this region. It is a rugged coastal park including former sea caves containing important archaeological sites.

The three Aboriginal Sites: Mount Cameron West, West Point and Sundown Point are all located on the northern part of the west coast. Mount Cameron West Aboriginal Site contains extensive aboriginal carvings.

NORTH WEST TASMANIA (contd)

Rainforest environments are protected in several reserves including the Pieman River State Reserve and the Hellyer Gorge State Reserve.

The majority of Tasmanian reserves specifically for karst features are in this region. Trowutta Caves State Reserve is centred about a large doline set amid rainforest. An interesting aspect of this doline is a natural arch across one part of it. The Gunns Plains Cave State Reserve, King Solomon Cave State Reserve and the Marakooopa Cave State Reserve are all visited by tourist coaches. In the 1977/78 financial year there were over 40,000 paying visitors to these cave reserves.

Lyons Cottage Historic Site at Stanley, reserves the childhood home of an early Australian Prime Minister, Joseph Lyons.

SOUTH WEST TASMANIA:

This region, defined by the proposed new Conservation Area boundary, (see map) contains the largest, and one of the last temperate wilderness areas in the world, and the only such area in Australia. From the point of view of nature conservation value, the scientific work so far done in the area indicates it as being especially unique in many ways.

The region contains four National Parks : Southwest National Park, Mt. Field National Park, Hartz Mountains National Park and Frenchmans Cap National Parks, the largest being the Southwest National Park covering 403,240 hectares and the smallest being the Hartz Mountains National Park.

Along with Macquarie Island Nature Reserve, the Southwest National Park is one of Tasmania's two Biosphere Reserves. The UNESCO Biosphere Reserves "provide both for the perpetuation of the Earth's living resources in all their variety, and for the proper study and understanding of the changes affecting them - for the future use and enjoyment of mankind".

The Southwest National Park is the destination each summer of a rapidly increasing number of walkers from the mainland as well as Tasmania.

The South West, defined by the proposed new Conservation Area boundary has also been nominated by the Service for inclusion in the World Heritage List being compiled by the World Heritage Committee of UNESCO.

Also contributing to the conservation of natural ecosystems, land features, and wildlife habitats in this region are several other reserves. These include the Truchanas Nature Reserve which reserve is one of the best remaining stands of the rare endemic huon pine.

ADMINISTRATION:

To carry out its responsibilities, the Service employs 179 full-time and 24 part-time officers distributed through 4 divisions. 77 are located at the Head Office in Sandy Bay while 126 are distributed throughout the field. 24 officers are employed through temporary funding of either State or Federal origin.

Figure 1 clarifies the organisation of the Service.

ADMINISTRATION (contd)Advisory Bodies

The National Parks and Wildlife Service in Tasmania is assisted by several bodies. They are:

National Parks and Wildlife Advisory Council

Consisting of not more than 12 persons, and appointed by the Governor, the Council comprises members representing the following interests: farming; forestry and timber industry; mining industry; tourism; land utilisation; planning authorities; botany; zoology; geology; State history and anthropology; outdoor recreational pursuits; hunting and shooting. The Council's duty is to advise the Minister on various aspects of fauna and flora conservation and it may make recommendations on these matters.

Aboriginal Relics Advisory Council

This Council of 5 persons advises and makes recommendations to the Minister and the Director on any matter related to the administration of the Aboriginal Relics Act 1975.

The Council includes the Directors of the Tasmanian Museum and Art Gallery and the Queen Victoria Museum and Art Gallery; 2 persons, one each nominated by the Council of the University of Tasmania and the Minister for National Parks and Wildlife; and a person nominated by a body recognised as representing peoples of aboriginal descent.

Wildlife Advisory Committee

This Committee includes University and Museum biologists as well as hunting and farming representatives and advises the Director on Wildlife matters.

Historical and Scientific Advisory Committee

This Committee advises the Director on matters and areas of historical importance particularly where scientific techniques are required to expose and preserve items.

Tasmanian Restoration Advisory Committee

This Committee, funded by the Federal Government, advises the Director on matters relating to the preservation and restoration of historic sites reserved under the National Parks and Wildlife Act 1970. The Committee is also available to advise other Tasmanian organisations on restoration projects for which Federal Government funds have been made available.

Macquarie Island Advisory Committee

The Committee generally meets once a year to discuss matters relating to Macquarie Island, particularly applications to carry out research and scientific investigations on the island.

Southwest Advisory Committee

Operating completely independently of the Service, this Committee reviewed eighty submissions and took evidence from thirty-five witnesses relating to the future of the Southwest.



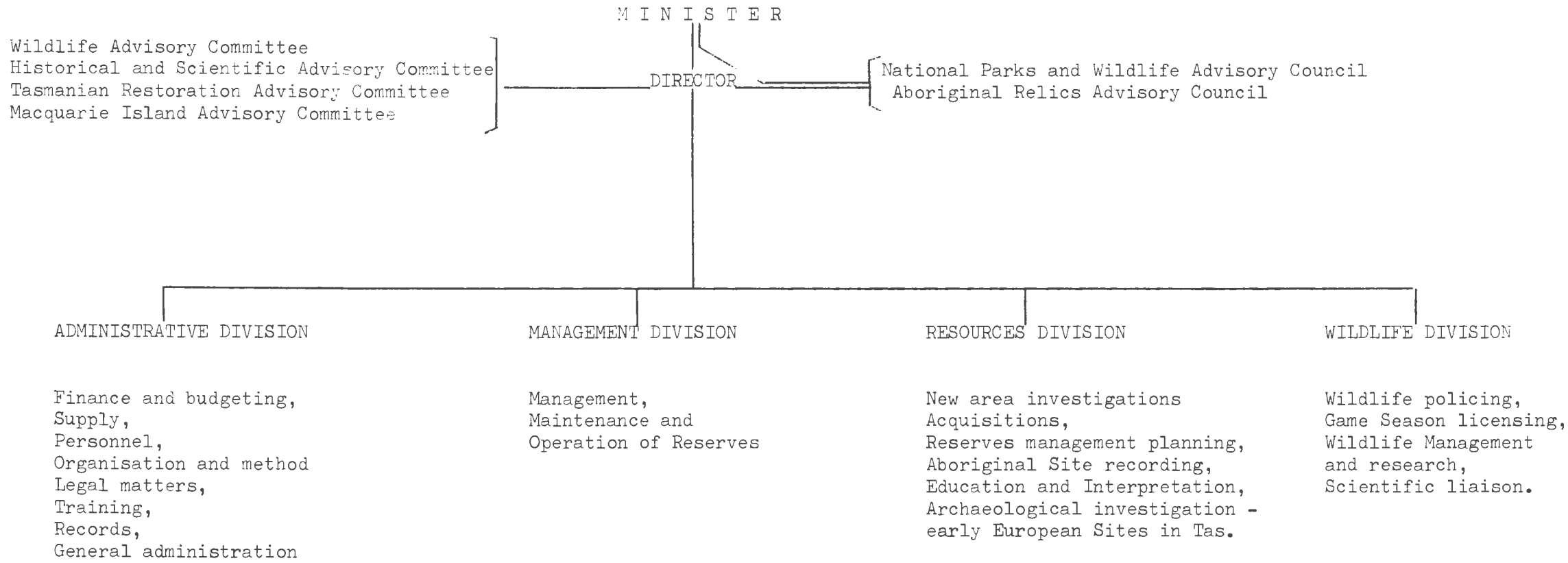
Southwest Advisory Committee (contd)

Early in 1978 the "Cartland Report" was released and recommended a significant extension to the South-west Conservation Area. Boundaries adopted were those submitted by the Australian Conservation Foundation. The new Conservation Area will be extended to cover over 800,000 hectares bringing the reserved Southwest area to over 1.2 million hectares (this includes the area of the existing Southwest National Park).

OTHER ADMINISTRATIVE BODIES:

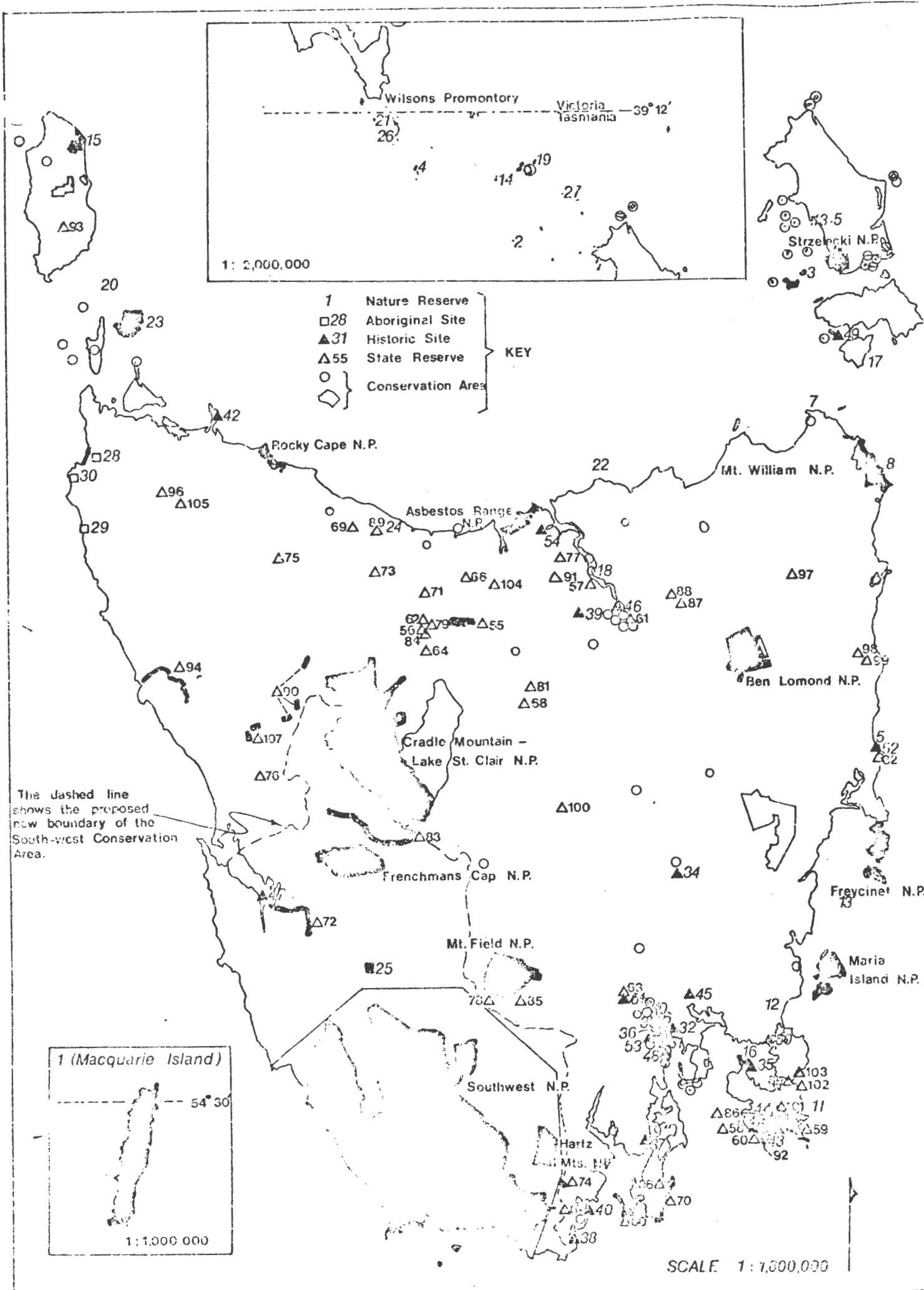
Other State administrative bodies which have a peripheral role to the work of the Tasmanian National Parks and Wildlife Service are : the Town and Country Planning Commission and the Department of Planning and Development.

(Discussion on the above paper appears at page 25 of Volume II of the proceedings).



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FIGURE 1



NATURE RESERVES

- |                                 |                                    |
|---------------------------------|------------------------------------|
| 1. Macquarie Island             | 33. Bowens Landing                 |
| 2. Bass Pyramid                 | 34. Callington Mill                |
| 3. Chappell Island              | 35. Coal Mines                     |
| 4. Curtis Island                | 36. 161 Davey Street               |
| 5. Diamond Island               | 37. D'Entrecasteaux Monument       |
| 6. East Risdon                  | 38. D'Entrecasteaux Watering Place |
| 7. Foster Islands               | 39. Entally House                  |
| 8. George Rocks                 | 40. "George III" Monument          |
| 9. Green Island                 | 41. Isle of the Dead               |
| 10. Green Point                 | 42. Lyons Cottage                  |
| 11. Hippolyte Rocks             | 43. Point Puer - Crescent Bay      |
| 12. Hospital Creek              | 44. Port Arthur                    |
| 13. Ile des Phoques             | 45. Richmond Gaol                  |
| 13.5 Isabella Island            | 46. Ritchies Mill                  |
| 14. Judgement Rocks             | 47. Sarah Island                   |
| 15. Lavinia                     | 48. Shot Tower                     |
| 16. Lime Bay                    | 49. "Sydney Cove"                  |
| 17. Moriarty Rocks              | 50. Tasman Monument                |
| 18. Native Point                | 51. Toll House                     |
| 19. North-east Islet            | 52. Waubedebars Grave              |
| 20. Reid Rocks                  | 53. Womens Prison                  |
| 21. Rodondo Island              | 54. York Town                      |
| 22. Tenth Island                |                                    |
| 23. Three Hummock Island        |                                    |
| 24. Three Sisters - Goat Island |                                    |
| 25. Truchanus                   |                                    |
| 26. West Moncoeur Island        |                                    |
| 27. Wright Rock                 |                                    |

ABORIGINAL SITES

28. Mt. Cameron West  
 29. Sundown Point  
 30. West Point

HISTORIC SITES

31. Batchelors Grave  
 32. Bluff Battery

STATE RESERVES

55. Alum Cliffs  
 56. Baldock Cave  
 57. Bradys Lookout  
 58. Brown Mountain - Remarkable Cave  
 59. Cape Pillar  
 60. Cape Raoul  
 61. Corra Linn  
 62. Croesus Cave  
 63. Derwent Cliffs  
 64. Devils Gullet  
 65. Eaglehawk Neck - Taranna  
 66. Eugenana  
 67. Exit Cave  
 68. Fairy Glade

69. Ferndene
70. Fluted Cape
71. Forth Falls
72. Gordon River
73. Gunns Plains Cave
74. Hastings Caves
75. Hellyer Gorge
76. Henty Glacial Moraine
77. Holwell Gorge
78. Junee Cave
79. King Solomon Cave
80. Labillardiere
81. Liffey Falls
82. Lookout Rock
83. Lyell Highway
84. Marakoopa Cave
85. Marriotts Falls
86. Mount Arthur
87. Mount Barrow
88. Mount Barrow Falls
89. Mount Montgomery
90. Murchison Highway
91. Notley Gorge
92. Palmers Hill Lookout
93. Pegarah Forest
94. Pieman River
95. Port Davey
96. Roger River
97. St. Columba Falls
98. St. Marys Pass
99. St. Patricks Head
100. Steppes
101. Stewarts Bay
102. Tasman Arch
103. Tessellated Pavement
104. Thermal Springs
105. Trowutta Caves
106. Waterfall Creek
107. Zeehan-Renison Bell

SITUATION REPORT - PAPUA NEW GUINEAPREAMBLE

The fearful impact on the environment of vast exploitative projects has produced a growing awareness amongst Papua New Guineans at all levels of the intrinsic value of the natural environment. The mining of copper on Bougainville, the clear felling of forests for wood chips and the dreary oil palm mono-cultures are all causing Papua New Guineans, at the village level to think more clearly about development and to consciously appreciate their natural environment which for so long was taken for granted, and the aspects of their traditional lifestyle.

GEOGRAPHY

Papua New Guinea covers a total land area of approximately 46,540,000 hectares lying between latitudes 2° and 12° South and longitudes 141° and 156° East. It comprises the eastern half of the island of New Guinea and the major islands from the St. Matthias and Admiralty groups in the North to the Louisiade Archipelago in the South making up the total land area of the country.

The country is situated in a zone of crustal weakness, separating the stable Australian continent and the unstable Pacific border. Both geologically and topographically the country is young and the landscape dynamic and unstable. Many volcanoes are still active and earthquakes, sometimes severe, are common. Coastlines in the east are slowly rising and those of the Papuan Gulf subsiding.

Papua New Guinea is a country of massive mountain ranges and huge rivers. Many of the ranges have peaks rising to over 3,000 metres and Mt. Wilhelm, the highest mountain in the country, rises to 4,500 metres. The Fly, Strickland, Kikori, Purari, Sepik and Ramu Rivers are all large by world standards.

Plant communities range from coastal mangroves and strand forests to lowland savannahs and grasslands and woody and herbaceous swamps; from lowland forests to mid montane oaks, laurels, beeches and conifers. True montane 'Moss' forests give way to sub-alpine scrub and finally alpine tussock grasslands at the highest altitudes.

CLIMATE

Papua New Guinea comes under the influence of maritime air streams originating in the South West Pacific and in the North West Pacific and China Sea, and theoretically therefore, should have a distinctly maritime climate.

The topographic alignment and altitude however, modify these influences to a great extent. The zone of intertropical convergence progresses, throughout the year, through the latitudes occupied by Papua New Guinea.

The climate of much, though not all, of the country falls into three season categories with a distinct wet season, and distinct dry season and a period "in between". This regime is altered and on occasions reversed by topographic influences.

Annual mean rainfalls vary enormously from 1,000 mm in the Port Moresby area to 6,000 mm in the Papuan Gulf and Southern New Britain areas. Over half the country, however receives 2,500 mm or more per annum.

In lowland regions temperatures are high throughout the year

with little or no monthly variation; the mean maximum is between 30°C - 33°C and the mean minimum 21°C - 25°C. In highlands the same general characteristics apply except that absolute temperatures are lower and there is a greater diurnal temperature range.

### POPULATION

The population of Papua New Guinea is estimated at 3,000,000 to February, this year. Its distribution throughout the country is erratic and population density varies enormously. The highlands is the area of heaviest rural population density with some areas having a density of 61 or more persons per km<sup>2</sup>. Large tracts of Western Papua and the Gulf provinces are virtually uninhabited and rate a density of considerably less than one person per km<sup>2</sup>.

### POLICY

The policy for ensuring environmental protection in Papua New Guinea is largely still being formulated. The Office of Environment and Conservation aims to develop controls for the Environmental affects of economic developments which will be taking place with increasing speed in Papua New Guinea's future. The past record has been one of lack of environmental concern at worst and at best an ad hoc response to crisis, and this attitude must be changed.

International aims are to maintain the Papua New Guinean environment so that it serves as an educational and recreational resource to benefit the world as a whole.

During 1977, the National Parliament of Papua New Guinea accepted the document "Environment and Conservation Policy - a statement of principles" as a description of the directive principle which will be applied in the development of Papua New Guinea.

Parliament recognises that development means change and declares that development must be ecologically, socially and culturally suitable for Papua New Guinea both the land and the people - such that the prosperity of the nation will increase with a minimum of adverse environment effects.

To be successful, development must operate within the framework of the Five National Goals as stated in the National Constitution. The fourth goal deals with the environment :-

#### " 4 Natural Resources and Environment"

- We declare our fourth goal to be for Papua New Guinea's natural resources to be conserved and used for the collective benefit of us all, and be replenished for the benefit of future generations.

### ENVIRONMENTAL LEGISLATION

Several Acts of the Papua New Guinea Parliament are concerned with the environment and in turn several government departments bear the responsibilities of implementing them. There is -

- Lands Act 1962 (as amended)
- Fauna Protection Act 1966 (as amended)
- Environmental Contaminants Act 1978
- Environmental Planning Act 1978
- Conservation Areas Act 1978

ENVIRONMENTAL LEGISLATION (contd)

The main pieces of legislation providing for the setting aside of land for public use, its administrations, management and control are the Lands Act 1962 (as amended), the National Parks Act 1966 (as amended), the Fauna Protection Act 1966 (as amended) and the Conservation Areas Act 1978.

The Lands Act, inter alia enables government owned or leased land to be reserved for a purpose specified in the notice. It also permits the appointment of trustees for lands so reserved.

The National Parks Act, inter alia, enables land that has been reserved under the Lands Act to be committed to the care, control and management of the National Parks Board for a place for the recreation or amusement of the public, a national park, a monument, a botanical garden, a zoological garden, a reserve or sanctuary for the protection of fauna.

The Fauna Protection Act, inter alia, enables the declaration of an area as a sanctuary for the protection of fauna.

AREAS RESERVED

Papua New Guinea entered the field of national parks and reserves much later than the more developed countries of the region. In 1966, legislation was passed establishing a National Parks Board which came into being the following year. For a variety of reasons little progress was made in the early years. However, since 1970 much work has been carried out - particularly in the investigation of potential areas for parks or reserves. This work is now being followed up with more intensive investigations and negotiations with the customary land owners.

The main stumbling block to the establishment of national parks and reserves in Papua New Guinea is the land tenure system. To all intents and purposes there is no Crown Land in the country. Since the first European involvement in the country the various administrations, and more recently the Government have, in the case of the latter, still do purchase or lease customary owned land. It is the only authority permitted to deal direct with the customary owners. However, the amount of Government owned or leased land is only a very small proportion of the land surface and the vast bulk of the land is still in the customary ownership.

Under the National Parks Act 1966, only land owned or leased by the Government can be set aside as national parks. This means that when an area has been investigated and found suitable for a national park, negotiations have to commence for the purchase or lease of land from the customary owners. If the owners are not keen on either selling or leasing their land then nothing further can be done until or unless they change their minds. For this reason the setting aside of areas for national parks and reserves has been, and will continue to be, a very slow process indeed.

It should perhaps be pointed out that, with the upsurge in exploitative development of the natural forest, the national park concept is receiving a more and more sympathetic hearing from customary owners. Agriculture and Forestry Monocultures clear felling for wood chips and the destruction of the natural environment by mining have all had a marked effect on the thinking of the local people affected by them.

At present two national parks, two provincial parks, one district park and two historical sites are committed to the care, control and management of the National Parks Board. Also a special area of Baiyer River Sanctuary comes under the Board.



VARIRATA NATIONAL PARK

Situated in the Astrolabe Range about 40 km from Port Moresby the park covers an area of about 1,000 hectares. It comprises both rain-forest areas and areas open savannah typical of the Port Moresby area.

McADAM NATIONAL PARK

Situated in the Bulolo River Gorge between the towns of Bulolo and Wau, the park covers an area of approximately 200 hectares. It contains one of the last virgin stands of Araucaria.

TALELE ISLANDS PROVINCIAL PARK

Situated off the north coast of East New Britain the park consists of a group of eight islands varying in size from approximately 2 to 40 hectares.

NANUK ISLAND PROVINCIAL PARK

Situated on the direct canoe route from Kokopo in East New Britain to the Duke of York Islands, this 4 hectare island is used as a staging point for those travelling by canoe.

CAPE WOM MEMORIAL PARK

Situated about 8 miles from the town of Wewak, this Historic Site is the point at which the Japanese surrendered in 1945. It covers an area of approximately 55 hectares.

In addition to these areas, negotiations are at an advanced stage for the establishment of a national park at Mt. Wilhelm, Mt. Kemeagi, Mt. Mosavi - a district park behind Central Government Buildings, Waigani, Vaigana Swamp, Paga Hill and the declaration of Kokoda Trail and Bulldog Trail as a national walking track. In addition 2 marine reserves Matupore Island near Port Moresby and Fly Islands in Morobe Province.

Apart from the areas committed to the management of the National Parks Board, the Wildlife Section of the Department of Lands, National Mapping and Environment control some reserves. These comprise mainly Game Management Areas where the Wildlife resource is harvested in accordance with conservation practices agreed to by local people.

ADMINISTRATION

The National Parks Act established the National Parks Board as the authority responsible for the care, control and management of land gazetted as national park monument, etc.

The Board therefore has the responsibility for the development and management of these areas but also is responsible for recommending areas of potential national parks etc., to the government. It also has the responsibility of promoting the concept of national parks and the conservation of natural resources. It is also empowered to give advice and assistance to local councils, provincial governments or people wishing to manage and develop their own land for conservation or recreational purposes.

To enable it to carry out its various functions the Board has established a National Parks Service whose officers are in its direct employ. The Service is responsible for carrying out the day to day

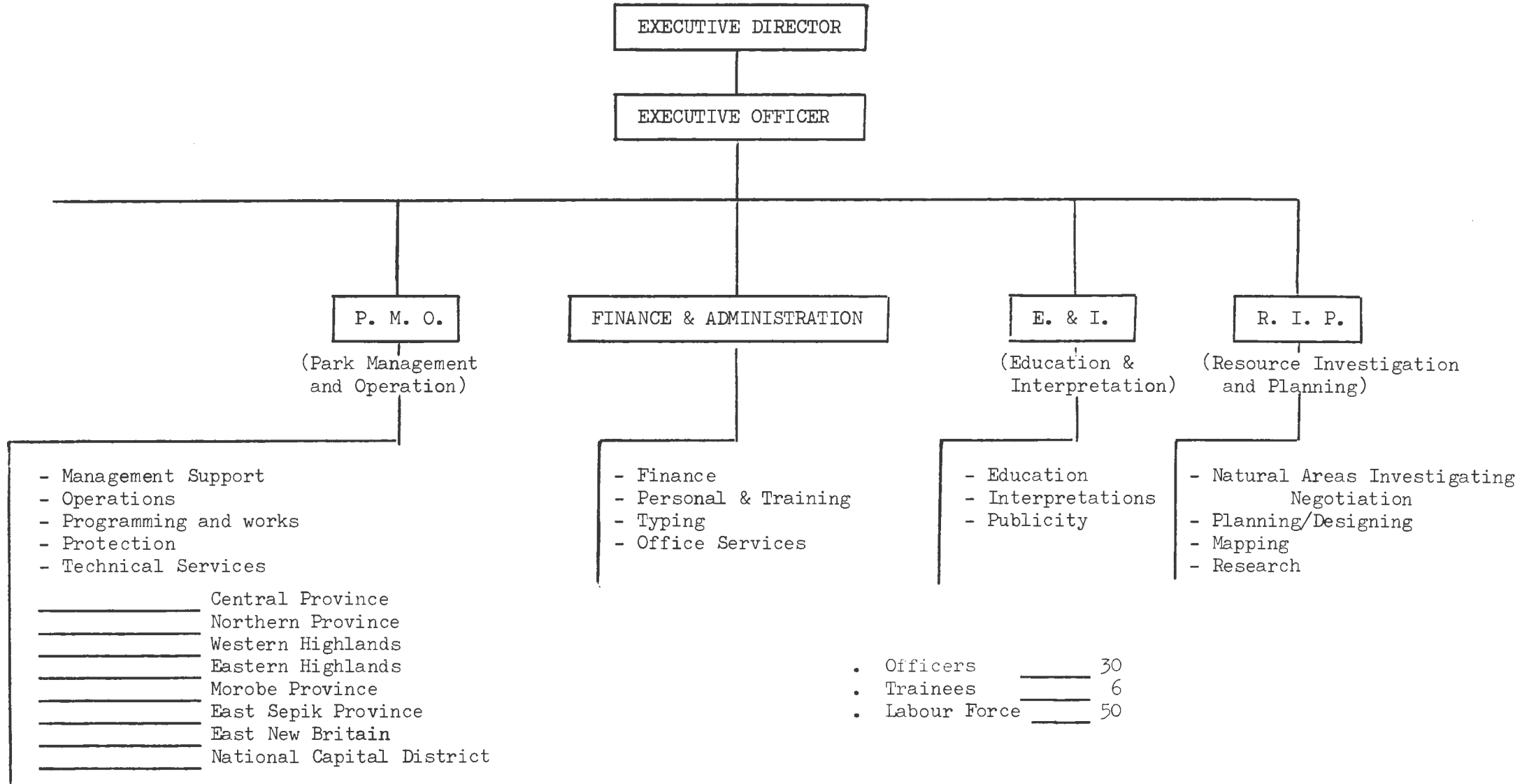
ADMINISTRATION (contd)

management role of the Board.

To carry out the task the service employs about 30 officers, of which thirteen are located in the Service's Headquarters Office in Port Moresby and seventeen out in Provinces.

The Service's Organisation Chart :-

7A



CONSERVATION AND ENVIRONMENT AGENCIES

The Ministry of Environment and Conservation which was created in April 1974, is the Government section which is responsible for environmental protection and planning in Papua New Guinea. The Minister for Environment and Conservation is supported by the staff of the office of Environment and Conservation which is functioning as a policy and co-ordination unit with operational responsibility delegated to appropriate Government Departments. The Office has a number of functions :-

1. formulation of a national environmental and conservation policy to ensure environmental factors are included in the overall management and development of Papua New Guinea.
2. initiation of legislation to protect and improve the quality of the environment.
3. enforcement of environmental protection measures, in co-operation with other Departments, to ensure more than lip service is paid to environmental principles.
4. stimulation of integrated land use planning studies to assist decision making about alternative land use opportunities.
5. stimulation of provincial, local and community involvement in the process of planning and implementing environmental action programmes.
6. collection, analysis, dissemination of ecological data.

The Office of Environment and Conservation works closely with the National Planning Office, the Government Policy unit which reports to the Cabinet Committee on Planning. The National Planning Office is also concerned with implementing environmentally sound development policies.

Most other Government agencies are involved with environmental protection both in helping to form policies and in making sure that they are followed.

(Discussion on the above paper appears at page 44 of Volume II of the proceedings).

SITUATION REPORT - QUEENSLANDGEOGRAPHY

The State of Queensland with an area of 1,728,000 square kilometres occupies the north east portion of the Australian continent. It lies within 10 and 29 degrees south latitude and 138 and 154 degrees east longitude. It has 5200km of coastline, and has land boundaries of 1625km with New South Wales 630km with South Australia and 1045km with the Northern Territory.

From north to south its greatest distance is 2100km and from west to east 1450km. The area is 22.5 percent of the Australian continent and the occupied area 31 percent of the Australian occupied total.

Four landscape regions may be recognised in Queensland: the Eastern Highlands, the Western Plains, the North Western Uplands and the islands and reefs which project above the Continental Shelf.

The physical features of the State range from the sandhill country and wide plains of the far west through vast grazing land eastward to the Great Dividing Range.

To the west of the range in the southern region lie the Darling Downs where a large percentage of the State's finest agricultural areas are located. The ranges of the Great Divide from the watershed of the principal rivers of the State, some of which flow westward from the range, while to the east flow the coastal rivers through the fertile coastal plain to the Pacific Ocean.

Seaward of much of the east coast for a distance of 1900km lies the Great Barrier Reef which with its vast expanse of coral reefs and islands forms one of the natural wonders of the world.

CLIMATE

The climate of Queensland varies from the hot climate of the tropical north to sub tropical and temperate areas of the southern region. The western areas are generally dry tending to arid in some regions while the Dividing Range assists much higher rainfall on the coastal plains. The far northern areas are subject to the monsoonal influence during summer months and resulting rainfall is extremely high in these areas leading to luxuriant growth of rain forest and other vegetation along the northern coastal plain.

The northern coastal plain is subject to severe flooding during the summer as are rivers which flow into the Gulf of Carpentaria. Although southern areas become cool and dry in winter, snow is virtually unknown in Queensland.

POPULATION

The Queensland population now exceeds 2.2 million people most of whom are distributed in the coastal areas east of the Great Dividing Range and highest density occurs within 300 kilometres of Brisbane. Throughout the interior where industry is almost entirely pastoral population is sparsely distributed.

POLICY

The Queensland National Parks and Wildlife Service was formed in 1975, however Queensland governments have a long history of association with nature conservation. The first legislative action was taken on 10th August, 1877 when royal assent was given to an act to provide for the protection of native birds. In 1906 protection was afforded to some native mammals by the introduction of a closed season for native bears and possums while total protection was conferred upon the tree kangaroo, wombat, platypus, echidna and pygmy glider.

POLICY (Contd)

The first National Park in Queensland was at Witches Falls on Tamborine Mountain. This park was declared on 24th March, 1908 and covered an area of 131 hectares.

Upon establishment of the Queensland National Parks and Wildlife Service during 1975 the Service undertook control of the states National Parks, environmental parks and fauna reserves. In addition the Service assumed control of the states wildlife management and the protection of native plants.

Since formation the Service has pursued a vigorous policy of acquisition of desirable lands which are representative of a wide variety of ecosystems occurring within the state.

In the sphere of wildlife management the Service recognises the need to conserve the states wildlife and protection of suitable habitat to ensure survival of all species.

The Queensland National Parks and Wildlife Service has established close contact with similar organisations both interstate and overseas to ensure ready access to matters of common interest involving both research and management in the fields of national parks and wildlife.

LEGISLATION

The National Parks and Wildlife Service Act of 1975 was enacted as enabling legislation to cover sections of the Lands Act, the Forestry Act and the Native Plants Protection Act.

Consolidation of the relevant provisions of these Acts will result in legislation covering all aspects of Service activities.

Prior to formation of the Service National Parks were under the control of the Forestry Department while wildlife management was the responsibility of the Department of Primary Industries.

AREAS RESERVED

Since establishment of the Queensland National Parks and Wildlife Service a dramatic increase has occurred in the Service estate from an area of 1,153,300 ha. in 1975 to 2,183,990 ha. as at December 1978. Rate of increase is continuing and is expected to continue for several years. In simple terms the area reserved as National Park within Queensland has virtually doubled within a very short space of time and reflects Queensland government involvement in this area. Significant areas of Cape York Peninsula are now reserved as National Park as are a wide variety of other significant features throughout the state.

SERVICE ESTATE

Currently the Service estate comprises:-

|                     |     |      |           |                     |
|---------------------|-----|------|-----------|---------------------|
| National Parks      | 323 | area | 2,188,468 | ha.                 |
| Environmental Parks | 74  | area | 34,582    | ha.                 |
| Fauna Reserves      | 3   | area | 30,227    | ha.                 |
| Fauna Refuge        | 1   | area | 105       | ha.                 |
|                     |     |      |           | TOTAL 2,253,382 ha. |

On national parks, environmental parks and fauna reserves the legislation protects the total environment - biological and physical.

It follows that the aim of management of our national parks is to cater for legitimate usage while preserving the natural conditions of the park itself. Activities within our parks and the resulting management will be influenced by usage which falls into two broad categories : scientific study, research, public recreation and enjoyment.

A new development in Queensland is the establishment of interpretive programmes for national park visitors.

Several such centres have now been established and our visitors will see the most recently opened at Kinaba Island during the pre Conference tour.

Programmes at such centres aim to interpret the natural features of the park to visitors so that their visit becomes a more meaningful experience.

### QUEENSLAND NATIONAL PARKS

Included in the States National Parks are widely varying areas and types of vegetation from desert country in the far west to islands of the Barrier Reef lying off the northern coast.

#### NORTH COAST

The Cape York Peninsula parks cover areas of dense rain forest, open swamp country, sand dune areas and coastal land of varying types.

Jardine River National Park contains most of the area drained by the Jardine River.

Most islands of the Barrier Reef are National Parks and on several islands tourist leases also exist and resorts have been established. Many northern parks contain examples of dense tropical rain forest.

#### CENTRAL REGION

This area contains a number of the parks located west of the Great Dividing Range including Carnarvon National Park famous for its examples of the prehistory of the Australian aborigines. Taunton National Park is part of the only known habitat of the rare bridled nail tail wallaby.

This area also has coastal parks of great significance and also islands off the coast which are protected by the Great Barrier Reef.

#### SOUTHERN REGION

The southern region from the Simpson Desert National Park in the far west to the coast contains many parks of widely varying types. Notable are Lamington and Cooloola which provide visitors on our pre conference tour the opportunity to view the attractions of these near Brisbane Parks. Girraween near Stanthorpe is another park which has immense public appeal while the Bunya Mountains near Dalby are extremely popular with campers. Smaller parks like Noosa and Burleigh Heads National Parks provide magnificent examples of coastal scenery.

Further north Fraser Island, the largest sand island in the world has a significant area of National Park preserving fine examples of coastal dunes, freshwater lakes and forest areas.

ADMINISTRATION

The Queensland National Parks and Wildlife Service is responsible through the Director to the Minister for Culture, National Parks and Recreation.

The Service structure comprises the Director, Deputy Director and Secretary and heads of the two branches - Management and Operations and Research and Planning.

The Service currently employs 240 people many of whom are field orientated and are involved in the day to day management of the Parks and other activities. Eighty people are located at Head Office in Brisbane and regional offices are established at Cairns, Townsville, Rockhampton and Maryborough. A South East Regional centre is being established at Moggill near Brisbane.

RESEARCH

The Queensland National Parks and Wildlife Service has a significant Research component involved in the process of habitat evaluation and research programmes involving many forms of native flora and fauna. Progress in these areas forms a basis for evaluation of land for both existing and future national parks and for the study of the States flora and fauna.

PROJECTS

The Service has a system of Honorary Rangers who assist Service officers in various areas and help to safeguard both park areas and native flora and fauna.

Junior Rangers - The Service has a Junior Ranger program which seeks to involve the young people of the community in the work of nature conservation and preservation of our natural resources.

TOUR VISITORS

Throughout the pre-conference tour of Queensland parks Service officers will be on hand to assist visitors with any further information which might be of assistance to them personally or to the organisation which they represent. Please do not hesitate to request further information which might assist you during the Queensland section of the tour.

(Discussion on the above paper appears at page 47 of Volume II of the proceedings).



SITUATION REPORT - NAURUPREAMBLE

The Republic of Nauru has never been able to develop National Parks and Reserves, yet it does have an interest in achieving a balance between man and his natural environment.

GEOGRAPHY

The island of Nauru is an elevated coral platform in the western Pacific close to the equator with a total area of 21.2 square kilometres, on which 60% is phosphate-bearing land on the central plateau. The population of 6,000 occupies the lower coastal platform. There are periods of drought when water must be imported from Australia.

POLICY

Since phosphate is the only significant resource on Nauru, the commercial development of the phosphate mining industry was the only possible avenue for economic development, and had to take priority over the conservation of the natural environment. Although subject to yearly negotiations which review phosphate prices, Nauru is committed to supply fertilizer to Australia and New Zealand farmers. It is therefore not possible to consider conservation of the remaining phosphate-bearing areas on the island. Of the total area with phosphate, 66% has already been mined, and at present rates of extraction, the remaining reserves will be exhausted in about 15 years. This presents the Government of Nauru with two problems:

1. the restoration of the mined areas to some natural or productive use; and
2. the future economic and social sustenance of the people of the island once the phosphate runs out.

RESTORATION

People cannot live divorced from the environment around them. The challenge for Nauru is to meet the needs of its people for food, water, recreation opportunities and a high quality environment in which to live. It will be necessary in the long term to restore the balance between man and nature which has been disrupted in the phosphate-mined areas.

Before phosphate is mined, the trees are cut down and the vegetation cover removed. The thin layer of fertile topsoil (8-18 inches deep) is not useful for phosphate extraction in its present form and is also removed and used for fillings and gardening, and surplus ore is stock-piled for future use in restoration. The phosphate is mined using mechanical shovels and grabs down to depths of 6 to 20 feet (2 - 6 metres). The worked out areas remaining after mining, consist of gaping holes with frequent outcrops and pillars of limestone, the barren surface of which supports little life. It has proven uneconomic even to level these areas, and the Government has therefore continued to investigate viable means and ways to solve the problem of restoration. Hopefully, the expertise now being gained in other areas and that which delegates will be exchanging at this conference will suggest new approaches which will be of use to the authorities responsible for restoration on Nauru.

Two kinds of information are particularly required: techniques or materials which might permit the viable restoration of those severely disturbed areas, and the time when such activities

RESTORATION (cont.)

should begin to achieve usable areas when they will be needed. In 1967, when Nauru began receiving the world national market price for phosphate, a rehabilitation fund was established. However, its resources are insufficient to restore the roughly 30% - 40% of the area that was mined prior to 1967.

The establishment of natural or productive biological communities on degraded land may be a new direction for conservation efforts, but one which will be increasingly needed all around the world. Nauru would welcome the co-operation of countries such as Australia and New Zealand with greater technical expertise in this area.

(Discussion on the above paper appears at page 50 of Volume II of the proceedings).

SITUATION REPORT - SOUTH AUSTRALIA

The following information is presented to delegates of the Second South Pacific Conference on National Parks and Reserves as a general outline of the policies and practices concerned with the development and operation of a representative system of Parks and Reserves in South Australia.

GEOGRAPHY:

Situated south of latitude 32°S, the State of South Australia has an area of 984,375 square kilometres, or 12½% of the total area of Australia.

South Australia is a land of low relief, with the inland areas being covered mainly with salt lakes, gibber deserts, and sand plains. Even the major peaks of the Mt. Lofty - Flinders Ranges system do not exceed 1200 metres.

Over half of the State is devoted to rangeland grazing and more intensive agriculture is practised only in the higher rainfall regions of the Mt. Lofty Ranges; the south-east of the State; and along the valley of the River Murray, where irrigation is used extensively.

South Australia's only major river, the Murray, drains a large catchment in eastern Australia, and flows through South Australia for 200 kilometres before entering the sea at Goolwa.

CLIMATE:

In the Southern Hemisphere, because of the intensive ocean areas and the absence of a broad land mass connecting the Antarctic with the tropical regions, the southern continents are not subject to the same range of weather extremes found in similar latitudes in the Northern Hemisphere.

This effect is particularly noticeable in South Australia which, in general, experiences hot dry summers and cool moist winters, with most of the rainfall during the months of May to August.

South Australia is by far the driest State in Australia, with just over 20% of the State receiving an average of less than 250 millimetres of rain annually.

The wettest part of the State is the Mt. Lofty Ranges, just east of Adelaide, where the average annual rainfall is about 1200 millimetres.

POPULATION:

Of Australia's total population of 14½ million people, South Australia has a population of 1,300,000. Seventy per cent of these live in urban Adelaide.

There are only six other towns in South Australia with a population of over 10,000 and so South Australia, like most other Australian States, can be considered to have a highly urbanised population.

POLICY:

The National Parks and Wildlife Service is a Division of the South Australian Department for the Environment. To discharge its responsibilities towards the development of a reserve system, a considerable proportion of the available funds have been spent on land acquisition for nature conservation purposes.

POLICY (cont.)

The present reserve system is an attempt to maintain viable samples of all the major ecosystems in the State as part of the national heritage.

In recent years, the rate of land acquisition has declined in comparison with the major commitments of the late 1960's and early 1970's, but there remains a continuing policy of land acquisition in the foreseeable future.

The management of the State reserve system is a major and increasing responsibility of the Service, and here the challenge is to provide a balance between providing a series of high-quality recreational areas for as many of the people of South Australia as possible, while retaining the important conservation values embodied within the reserve system.

In respect to wildlife, the Service aims to prevent the extinction of native species, both through conservation of habitat within the reserve system, and through protective legislation.

The Service also recognises that destruction of native animals may be necessary for economic or other reasons, and that it has a responsibility to manage the overall populations to ensure that no species is endangered.

The South Australian National Parks and Wildlife Service is a small organisation, and as such, has had little opportunity directly assist other similar organisations. It is, however, pleased to cooperate and participate in conferences and discussions where any specialised expertise developed in South Australia can be passed on to other interested parties.

LEGISLATION:

The National Parks and Wildlife Act, 1972-78 is the Act under which the Service operates.

- \* It provides for the establishment and management of national parks, conservation parks, recreation parks and game reserves.
- \* Vests control of these areas in the Minister of Environment.
- \* Makes wide ranging provision for the conservation of native mammals, birds, reptiles and plants.
- \* Constitutes a Reserves Advisory Committee.
- \* Requires the preparation and implementation of management plans for reserves.
- \* Establishes a Wildlife Conservation Fund, and
- \* Enables the acquisition of land for the purposes of the Act.

AREAS RESERVED:Dedicated under the National Parks and Wildlife Act

National Parks. These comprise areas of significance to the nation, by virtue of their extent, outstanding natural features, vegetation and wildlife, or features of cultural significance, or a combination of these. Due to their outstanding natural attributes, these areas attract high levels of visitation. They are managed to keep the natural features in perpetuity.

AREAS RESERVED: (cont.)Dedicated under the National Parks and Wildlife Act (cont.)

Conservation Parks comprise areas which contain natural features, vegetation and wildlife, or combinations of these, as well as areas in which the natural processes can continue unaffected by man. Visitation and development of these areas is minimal.

Recreation Parks comprise areas of significance to the State by virtue of their natural features, vegetation and wildlife, or features of cultural significance, or a combination of these. Due to their natural attributes and/or location, these areas attract high levels of visitors who are catered for without development adversely affecting the natural attributes.

Games Reserves are areas for the conservation of wildlife and game species. Visitation by both hunters and non-hunters is provided for, and managed in harmony with the natural features.

In Private Ownership

Sanctuaries comprise areas of land which contain natural habitat or an environment of conservation value. The Act prohibits the taking of any animal within a sanctuary, and encourages management programmes aimed at improving the natural habitat.

DEDICATED RESERVES:

As at June 1, 1978, the areas under the control of the National Parks and Wildlife Service were:

8 National Parks;  
162 Conservation Parks;  
15 Recreation Parks; and  
8 Game Reserves.

They covered a total area of 3,920,940 hectares, or almost 4% of the State's total area.

\* The accompanying map indicates the positions of these reserves, and gives details of the holdings and dates of acquisition.

The reserve system can be conveniently divided into the following regions, each offering a different variety of natural features.

South East and Murraylands.

The Coorong and Canunda National Parks, and a variety of important conservation parks, such as Naracoorte Caves, Fairview, Messent, Mt. Rescue, Ngautngaut, Roonka, Brookfield and all of the State's game reserves.

They conserve large areas of coastal dunelands, heath and mallee, with special features such as caves being well represented.

The game reserves, in particular Bool Lagoon, are major areas of waterbird habitat in the region.

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\* (Due to logistic problems associated with size reduction of this map, it is suggested you refer to the copy distributed at the Conference).

DEDICATED RESERVES (cont.)Mt. Lofty Ranges and Fleurieu Peninsula

This area, closest to Adelaide, has a number of recreation parks such as Belair, Para Wirra and Loftia. Important conservation parks include areas such as Deep Creek, Cox's Scrub, Morialta, Cleland, Port Gawler, Horsnell Gully and Kyeema.

In this region of higher rainfall, forests and woodlands are the dominant vegetation types, with extensive heathlands on poorer soils and nearer the coast.

Mangroves are also well represented in parks in this region.

Some recreation parks have very high levels of visitation and facilities for sports such as tennis, golf and ball games are provided.

Yorke and Eyre Peninsulas

Two national parks, Innes and Lincoln, contain some of the most spectacular coastal scenery in the State, and the numerous large conservation parks such as Lake Gilles, Pinkawillinie, Hincks and Hambidge, conserve extensive areas of the mallee and semi-arid woodlands characteristic of the region.

Kangaroo Island

A significant proportion of the island is reserved.

The largest and most important area is Flinders Chase National Park, the site of some early, and surprisingly successful, attempts at acclimatising native animals to the area.

The rugged coastline and extensive mallee and heathland wilderness make Flinders Chase one of the most important National Parks in Australia.

Conservation parks on Kangaroo Island include Seal Bay, Kelly Hill, Cape Torrens and Cape Gantheaume. At Seal Bay, a breeding colony of Australian sea lions can be closely approached by visitors, a situation that is unique in the world.

The Flinders Ranges

National Parks in this region are all in the spectacular Flinders Ranges and include Gammon Ranges, Flinders Ranges and Mount Remarkable.

The Flinders Ranges National Park which includes the spectacular natural features of Wilpena Pound and Brachina Gorge, provide some of the most popular camping areas in the State.

The permanently-flowing creeks lined with majestic river red gums in a rugged arid landscape, make this park immensely popular, not only within South Australia, but with visitors from other States, and overseas.

The conservation parks in the north include Simpson Desert, Elliot Price, Telowie Gorge and Danggali.

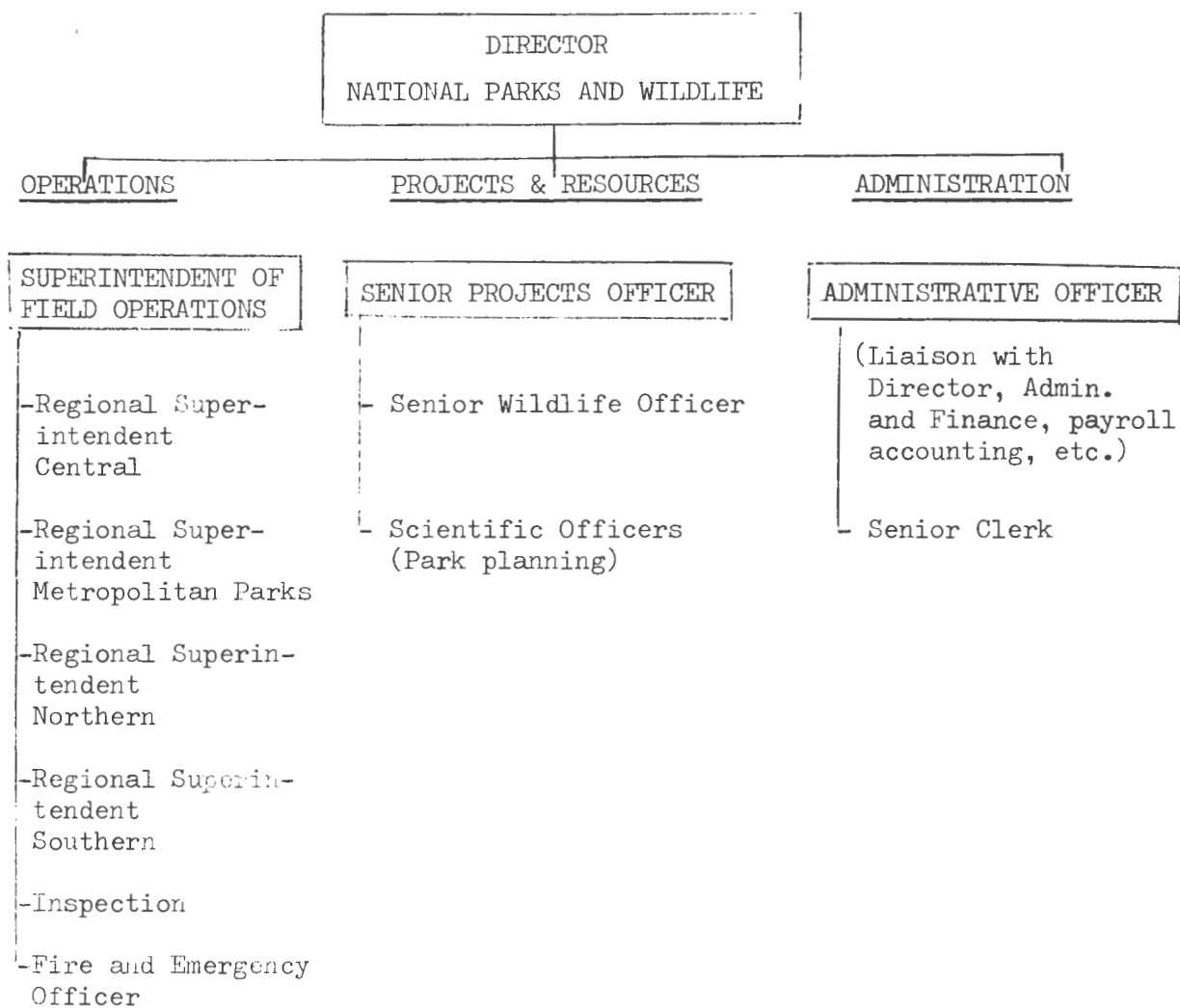
These extensive wilderness areas conserve a wide variety of arid landscapes, from the rich red parallel dunes of the Simpson Desert, to the mallee and black oak woodland of Danggali and the glaring salt-encrusted surface of Lake Eyre, in Elliot Price.

ADMINISTRATION:

The objectives of the National Parks and Wildlife Service of South Australia is to conserve the natural environment of the State so it is available to the people of Australia for educational, scientific, recreational and cultural purposes.

To carry out these responsibilities, the Service employs about 150 officers. About 40 of these are located in the Service's Head Office in Adelaide.

The Director of the Service coordinates the operation of three sections within the organisation (Operations, Administration and Projects and Resources). The organisation of the Service is summarised below:-



As the Service is a field-oriented organisation, the administration of the State has been divided into three regions. At present these regions are still administered from the Head Office in Adelaide, but plans are well in hand to open two regional offices.

ADVISORY BODIES:

The National Parks and Wildlife Service is assisted by several groups which give it expert advice on a wide variety of topics.

The Reserves Advisory Committee is a five-member body concerned with the provision of advice to the Minister of management plans and other matters referred to it by the Minister. It makes recommendations on the distribution of the Wildlife Fund and on research matters, and purchases of land for wildlife purposes.

Development Trusts have responsibility for the development of specifically designated parks. Three trusts have been set up - the Black Hill Native Flora Park Trust; Cleland Conservation Park Trust and the General Reserves Trust, which care for parks serving the Adelaide metropolitan area. Each Trust has the potential to borrow money under the Semi-Government Borrowing Programme, which provides great potential for extended park development.

The Environmental Protection Council established in 1972, has power to investigate, advise and report on the overall condition of the environment throughout the State; the effectiveness of steps being taken or proposed to protect the environment; the possible dangers to the environment of any proposed developments; to warn of potential environmental deterioration; and to recommend action to overcome or correct anything adversely affecting the environment. The Council is required to examine and report on matters referred to it by the Minister of Environment, but can also initiate inquiries of its own right.

GOVERNMENT DEPARTMENTS

THE SOUTH AUSTRALIAN DEPARTMENT FOR THE ENVIRONMENT (of which the National Parks and Wildlife Service is a Division) includes other Divisions involved in work related to reserves, the conservation of fauna and flora, or land management generally.

The five Divisions are Administration and Finance, Co-ordination and Policy, Coast Protection, National Parks and Wildlife and Projects and Assessment.

They include smaller units with special expertise.

The Heritage Unit which is part of the Co-ordination and Policy Division, provides technical advice and administrative support for the South Australian Heritage Committee which advises the Minister on heritage matters.

The Heritage Unit assists the Committee in the preparation of the register of the State's cultural heritage and develops planning controls to protect significant historic areas and buildings representative of the State's cultural development.

This work also applies to historic buildings within parks.

Coast Protection Division provides advice on the measures necessary for the protection of South Australia's 4,000km of coastline. The Division also provides technical data and administrative support for the Coast Protection Board, which advises the Minister on the means by which South Australia's coastline can be adequately safeguarded against undesirable development and natural, or man-caused deterioration.



The Projects and Assessment Division is responsible for undertaking the assessment of the environmental implications of projects and programmes. It also carries out project work and research relating to environmental protection generally and is the source of most of the technical and scientific expertise in the Department.

In addition, its Director oversees the operations of several units.

The following have relevance to the National Parks and Wildlife Service:

The Ecological Survey Unit uses satellite imagery to undertake a resources inventory of the State.

The Aboriginal Heritage Unit provides technical advice and administrative support for the South Australian Aboriginal Heritage Committee and assists the Committee in the preparation of a register of sites, some of which are within National Parks and Wildlife Reserves.

THE DEPARTMENT OF HOUSING, URBAN AND REGIONAL AFFAIRS promotes more efficient and equitable urban and regional development; and assists with the integration of urban and regional development programmes and projects of all State Government agencies.

THE DEPARTMENT OF LANDS. The Land Resources Management Division is responsible for the management of unalienated Crown Lands in an effective, efficient and economical manner. Responsibility is established under the Pastoral, Crown Lands, Irrigation, and Marginal Lands Acts.

THE DEPARTMENT OF AGRICULTURE AND FISHERIES advises Government on the management of agricultural and fishing resources of the State; conducts research into all aspects of agricultural and fishing industries; and is responsible for marine reserves, soil conservation, Country Fires Act and the Vertebrate Pests and Pest Plants Acts.

(Discussion on the above paper appears at page 51 of Volume II of the proceedings).

SITUATION REPORT - KINGDOM OF TONGAPREAMBLE

Like most Pacific islanders, Tongans have always lived close to the land and the sea. The rich soil of Tonga and the numerous reefs which surround the islands have provided abundant food for its people. The plants, animals and scenery provided inspiration for poetry, legends and love songs. The natural environment is the source of the "Fiemalie", the feeling content and relaxed, which Tongans treasure. Tonga is now involved in extensive agricultural, fisheries and economic development. These projects must follow a rational and organized program where environmental effects are considered. The establishment of marine and terrestrial parks is timely and essential before irretrievable damage occurs and priceless natural resources are lost forever. Since the first South Pacific Conference on National Parks and Reserves in 1975, Tonga has made considerable progress in environmental legislation and in the establishment of national parks.

GEOGRAPHY

The Kingdom of Tonga is located just west of the International Dateline, south of Samoa and south-east of Fiji. It is 3200 kilometers north-east of Sydney and 1800 kilometers north north-east of Auckland. Tonga consists of 150 widely scattered islands with a total surface area of 69,780 hectares. Only 45 of the islands are inhabited.

There is a wide variety of scenery and vegetation ranging from the luxurious rain forests and 250 meter cliffs of 'Eua to the stark volcanic islands of Niuafu'ou and Tofua. The volcanic island of Tafahi is crowned by a "fog forest" of tree ferns. The Vava'u group has fjord-like scenery; the Ha'apai group consists of low atolls; and the main island of Tongatapu is surrounded by reefs, lagoons and 30km of blowholes with geysers shooting 15 m. into the air.

In 1978, Tonga declared a 200 miles exclusive economic zone which encompasses approximately 362,000 sq. km.

CLIMATE

The Kingdom's climate is pleasant, being slightly cooler than most tropical areas. The temperatures range from 13° - 18° in June and July to 26° - 32° C. in December and January and the mean humidity is 76.9%. The mean rainfall is 178 cm. per year with much of this concentrated on the wet season of December, January and February.

POPULATION

In 1978, the population of Tonga was 92,662 and is growing at the rate of 2% per year. Sixty-three percent of the population lives on the main island of Tongatapu, 17% in Vava'u, 12% in Ha'apai, 5% in 'Eua and 3% in Niuafu'ou and Niuatoputapu. About 23% of the people of Tonga live in the capital city of Nuku'alofa which has grown from a village of 4,000 in 1936 to a city of 19,000 today. Much of this growth can be attributed to migration from rural areas and outer islands. Fifteen percent of the population of Tonga is under 4 years old and 45% is less than 15. Tonga has a Family Planning Program which is beginning to show some positive results.

ENVIRONMENTAL LEGISLATION

The Kingdom has enacted several pieces of legislation to manage and protect the natural and cultural resources of Tonga.

ENVIRONMENTAL LEGISLATION (Contd)

The Bird and Fish Preservation Act limits or prohibits the catching or injuring of certain species of fish, birds and turtles and establishes the legal authority to fine, imprison and confiscate equipment used in catching the protected animals. Hunting of turtles during the summer breeding season of November, December and January is prohibited, and hunting of the leatherback turtle (Dermochelys coriacea) is prohibited altogether. Under this Act, the two major lagoons of Tongatapu, Fanga'uta and Fangakakau are protected as areas of environmental importance. These lagoons are important sites of fish breeding.

The Preservation of Objects of Archaeological Interest Act of 1969 protects the archaeological, cultural, and historic resources of Tonga. All excavations and investigations must be approved by the Tonga Traditions Committee and no object of archaeological interest may be removed from the Kingdom, temporarily or permanently, without a permit from the committee. Within two years all investigations must produce a published scientific report.

The Tourist Act of 1976 established the Tonga Tourist Board and the Tonga Visitors Bureau to develop tourism for the benefit of all Tongans and to license, regulate and control the tourist industry.

The Parks and Reserves Act of 1976 established the Parks and Reserves Authority to protect, manage and develop natural areas in the Kingdom. According to the act, "Every Park, subject to any conditions and restrictions which the Authority may impose, shall be administered for the benefit and enjoyment of the people of Tonga and there shall be freedom of entry and recreation therein by all persons. Every reserve, subject to any conditions and restrictions which the Authority may impose, shall be administered for the protection, preservation, and maintenance of any valuable feature of such reserve, and activities therein and entry thereto shall be strictly in accordance with any such conditions and restrictions."

POLICY

There are four purposes of the National Parks of Tonga: conservation, recreation, education and research. By establishing national parks and reserves, Tonga will be conserving valuable natural resources. Along with its fertile soils, the coral reefs of Tonga are the national heritage of the Kingdom. The parks will preserve areas with a minimum of human interference. These will be references against which the effects of fishing, shell collecting, dynamiting, sand removal, agricultural development and forestry can be measured.

The reefs will provide suitable habitat for breeding population of fish and shellfish and some of their progeny will migrate out of the parks and become part of the commercial catch of Tongan fishermen and end up on Tongan tables.

The terrestrial parks will preserve populations of plants and animals which are rare and endangered. Some representatives of the original forests of Tonga will be saved.

The second purpose of the National Parks is recreation. Parks supply a place for people to relax and enjoy the natural environment. The popularity of Ha'atafu beach on Saturdays attests to the attractiveness of beaches and parks.

Another aspect of recreation is tourism. The parks can become tourist attractions. Snorkelers and SCUBA divers from around the world will come to experience reefs of unparalleled beauty where the fish and shellfish are abundant and tame because they are not hunted or fished. Only recreation activities consistent with the goals of the park would be allowed. The taking of any living organisms would be strictly

POLICY (Contd)

prohibited. Visiting the parks would give tourists an incentive to spend more than the average of three days in Tonga and would therefore stimulate the tourist industry in Tonga which provides \$4 million per year to the economy.

The third purpose is education. School children and high school students can be taken to the parks as field trips to supplement the science and biology curriculums of the Tongan school system. Marine biology, ecology, the natural history of local plants and animals and conservation can be taught using local flora and fauna. The parks can also be a forum for public education to the Tongan people on the principles of conservation through articles in the Tonga Chronicle and through the broadcast media (Radio Tonga).

The fourth reason for the national parks is the establishment of preserves where scientists from Tonga and from the rest of the world can perform field experiments in various aspects of biology. Both short-term and long-term experimentation would be possible in areas where human interference would be minimized. All research projects must have prior approval of the National Parks Supervisor and must be consistent with the goals and purposes of the parks.

AREAS RESERVED

The concept of parks and reserves is not new to Tonga. Almost 40 years ago, in 1940, 'Ata, the Minister of Lands, Gazetted a park reserve at Haveluloto along the shores of Fanga'uta lagoon. Not only does this demonstrate foresight on the part of the Tongan Government, it set the legal precedent of parks and reserves coming under the Ministry of Lands. In 1972, King Taufa'ahau Tupou IV declared 2 reserves: at Mui Hopohoponga and at the Ha'amonga Trilithon. Mui Hopohoponga is a 2 km. stretch of beach on the extreme eastern end of Tongatapu. The Ha'amonga Trilithon, the Stone Henge of the South Pacific, is a 23 ha. reserve.

The Ha'amonga consists of two upright stones 5 m. high which weigh 30 to 40 tonnes and a cross piece 6 m. in length. It was built by the famous Tu'i Tonga, Tu'itatui, about the year 1200 AD. At the request of the present King of Tonga, who is a descendant of Tu'itatui, the Ha'amonga was surveyed by Sione L. Tongilava using stellar and solar sightings. At 7.14 a.m. on December 22, 1968, the sun rose at the exact point on the horizon at the point predicted by marks on the lintel.

Under the Parks and Reserves Act of 1976, Tonga has gazetted two national parks which comprise the entire islands of Monuafe and Molinoa and five marine reserves. Two reserves are the reefs which surround the islands of Malinoa and Monuafe and the other three are reefs at Pangaimotu, Hakaumama'o and Ha'atafu.

Tonga will soon have a major terrestrial park on the island of 'Eua which lies 19 km. south south-east of Nuku'alofa. 'Eua is 20 km. long and 7 km. wide. Being the geologically oldest island in Tonga, having wide vertical diversity and being lightly settled and developed, 'Eua possesses the most extensive, undisturbed habitats in the Kingdom. The proposed national park on the east side of the island encompasses 1400 hectares and four major habitats: The ringing reef, the coastal region, the eastern ridge and ridge summit. Being on the windward side of the island and receiving extensive wave exposure, the reef consists of terraced pools ringed by the corraline algae, Lithoammon sp. The outstanding feature of the coastal region is the Matalanga 'a Maui with a natural bridge made of limestone 25 m. thick.

AREAS RESERVED (Contd)

The roof of a wave-formed cave has collapsed leaving a chasm 85m. in diameter. Rising abruptly from the ocean is the eastern ridge. The limestone cliffs are interrupted by volcanic terraces giving a staircase effect. The terraces are densely forested with streams and waterfalls stretching out across the cliffs providing majestic scenery.

The park in 'Eua protects several species of plants and animals indigenous to 'Eua. The park includes five indigenous species of plants and several species which are found in Tonga and Samoa or Tonga and Fiji only. The park also contains some of the last stands of sandalwood in the South Pacific. Sandalwood is presently being harvested faster than its reproduction in Tonga.

The islands of the South Pacific have had many species of birds become extinct, more than the rest of the world combined. The Hawaiian and Society Islands have lost 50% of their avifauna already. Isolated islands have small populations of birds which are very sensitive to changes in their environment such as agricultural development or the introduction of predators and competitors. Of the 47 species of birds known to occur in Tonga, several are no longer found on certain islands. Some of Tonga's birds such as the fruit doves, Ptilinopus porphygraceus and P. perousii, and the red breasted musk parrot, Posopeia tabuensis, are only found in Tonga and the nearby islands of Fiji and Samoa. Of the 47 species of birds found in Tonga, twenty-four occur in 'Eua. The most striking are the brightly-coloured parrot and its raucous call, the elegant white-tailed tropicbird, Phaethon lepturus, and the Pacific pidgeon, Ducula pacifica, called "Lupe" in Tongan. The "Lupe" plays an important role in Tongan love songs, literature and tradition. Once abundant, its numbers are dwindling. It is hoped that the park on 'Eua will qualify for international recognition as a IUCN "Island for Science" reserve.

We will propose that the entire island of "Ata" become a "Man and the Biosphere" reserve.

Tonga is also considering national historical parks to preserve sites of archaeological, cultural and historic importance.

1. Pouono National Historical Park

In 1839 Tupou I, the first King of modern Tonga, proclaimed the Code of Vava'u, the first written law of Tonga and the basis of the present constitution.

Tupou I picked up a handful of soil tossed it into the air and said, "Ko e 'Otua mo Tonga ko Hoku Tofi'a" which means, "God and Tonga are my inheritance". This is the national motto and a source of great pride to all Tongans.

2. Kanokupolu National Historical Park

In 1631, while sitting under a kika tree (Bischofia javanica), Ngata was crowned the first Tu'i Kanokupolu and founded the house of Tupou, the present ruling family. Part of the original kika tree is incorporated into the throne in the Royal Chapel.

3. Captain Cook's Landing Place

On 26th of June, 1777, Captain Cook landed in Tonga and observed the solemn ceremony of presenting the first fruits to the sacred king, the Tu'i Tonga. He landed at the banyan tree at 'Alaki called the Malumalu'o Fulilangi.

4. Langi Mu'a National Historical Park

In the ancient capital of the Tu'i Tonga dynasty at Mu'a, there are 28 tombs of the royal families which are huge stepped pyramids faced with large blocks of coral stone. The most magnificent is the Langi Paepae'o Tele'a which is 41 m. long, 28 m. wide and 2.5 m. high. One "L" shaped cornerstone is 6.5 m. long on one side and 2 m. long on the other. This langi was probably built by the Tu'i Tonga, Tele'a.

Tonga's interest in conservation and national parks was sparked by the Hon. Tuita, Minister of Lands, Surveys and Natural Resources, who attended the first South Pacific Conference on National Parks and Reserves held in Wellington in 1975. Since then Tonga has enacted legislation, protected certain areas and begun the process of public education. We are optimistic about the parks and the influence they will have on the future of Tonga.

(Discussion on the above paper appears at page 53 of Volume II of the proceedings).

SITUATION REPORT - VICTORIAPREAMBLE

Victoria was constituted as a State in 1851, by which time much of the land had been taken up for pastoral purposes. However some of the State was too inaccessible or unsuitable for agriculture and remained as unalienated Crown land. Victoria, along with Tasmania, differs from other States of Australia by having a high percentage of land held as freehold. Of the total area, 60% is freehold, 10% is Crown land under lease or licence, 14% is Reserved Crown land, and 16% is unoccupied and unreserved Crown land.

Compared with other States of Australia, Victoria is very small and densely populated. It also has a high proportion of land which is suitable for agriculture and the native forests are extensively used for production of timber and other wood products.

During the last decade there has been greatly increased public awareness of the need for a wide variety of environmental protection measures. There have also been many conflicts in proposals for land use. This has been most evident in the competing claims for use of Crown land for grazing, forestry, mining, water supply and conservation purposes.

GEOGRAPHY

Situated at the south-eastern extremity of the Australian continent, Victoria occupies about 2.96 per cent of the land-mass and covers approximately 22,762,000 hectares.

The State is bounded on the north and north-east by New South Wales from which it is separated by the River Murray. The meridian of longitude 140° 58' east divides Victoria from South Australia, while the eastern extremity of the State extends to 150° east. Victoria lies between latitudes 34 degrees south and 39 degrees south.

Topographically, the State consists of a northern plain (the Murray River Basin Plain) separated from the southern plains (the Western District and Gippsland Plains) by an east-west range of highlands (the Central Highlands). South-west and south-east of Melbourne are two highland areas (the Southern Uplands). The highest mountain peaks lie in the East Central Highlands - Mount Bogong (1986 metres) being the tallest.

Although small, the State has great diversity of habitat, ranging from Alpine to coastal and rainforest to desert. However it differs from all other mainland States in lying almost entirely outside the Arid zone of Australia.

The combination of climate and vegetation type mean that Victoria is one of the most hazardous areas in the world for bushfires.

CLIMATE

Though without a precise northern hemisphere counterpart, Victoria's climate approaches the mediterranean type with sub-alpine and semi-arid variants and, on a world-wide comparative basis, is rather equable. Nevertheless, it ranges from the hot north-western Mallee region summer to the winter blizzard conditions of the north-eastern alps.

The Central Highlands play a major role in the climate of Victoria.

Rainfall varies from below 300 mm in the north-west corner of the State to over 1400 mm on some of the eastern mountains.

CLIMATE (Contd)

North of the Central Highlands the annual average rainfall gradually diminishes from 500 mm to 250 mm. Most of the southern regions receive above 625 mm per annum while parts of the Central Highlands and Southern Uplands record 1000 mm. Winter incidence is almost State-wide with 60% falling between May and October.

Conditions of extreme summer heat may be experienced in all areas except the alpine region. February is the hottest month, with January only slightly cooler. Average maximum summer temperatures are under 24°C along the coast and on elevated areas forming the Central Highlands. Elsewhere, there is a steady increase towards the north until an average of 32C is reached.

Summer average minimum temperatures range between 10°C and 16°C throughout most of the State.

In mid-winter the average minima exceed 5°C along the coast, with little inland variation, although the average minima dip below -1°C in the north-east alps.

POPULATION

The Australian Bureau of Statistics estimated the population of Victoria to be 3,318,400 at June 1978. The growth rate at that time was 0.95%.

More than 70% of the population is concentrated in the Melbourne and metropolitan area, with a populace of approximately 2,700,000.

Geelong and environs has 138,000 persons, Ballarat 72,000 and Bendigo approximately 58,000.

GOVERNMENT POLICY

There are many Government and semi-government agencies in Victoria with a legislative responsibility for protection of the environment. Some of these such as the National Parks Service, the Fisheries and Wildlife Division, the Lands Department, the Forests Commission and the Melbourne and Metropolitan Board of Works are actively managing reserves for the protection of the environment. Others, such as the Soil Conservation Authority and the Environment Protection Authority are not land managers, but have a general protection role.

The Victorian Government has given strong support to the establishment of an adequate system of national parks throughout the State. This is illustrated by the substantial increases made in recent years in the area administered under the National Parks Act and in the staff and funds provided to the Service.

LEGISLATION FOR NATIONAL PARKS

The National Parks Service of Victoria is an agency of the Ministry for Conservation. Other agencies of the Ministry are the Soil Conservation Authority, Environment Protection Authority, Fisheries and Wildlife Division, Land Conservation Council and Port Phillip Authority. The Ministry also has a responsibility for the protection of aboriginal relics, environmental studies, environmental assessment and ministerial jurisdiction over Melbourne Zoo and Healesville Sanctuary.



LEGISLATION FOR NATIONAL PARKS (Contd)

In 1866 an area of 597 hectares near Warrnambool was set aside as a public park to preserve its outstanding geological features. This area, encompassing Tower Hill, was given the status of a national park in 1892 by a special Act of Parliament, and thereby became Victoria's first "national park". However, the early efforts by the local park were somewhat different from the current concept of national park management. This reservation was subsequently revoked.

From 1898 on, a number of areas were set aside under the Land Act as "sites for national parks". In each case the area was managed under the Land Act and usually a local Committee of Management was established to manage each park. The first of these, in July 1898, was a temporary reserve of 36,842 hectares at Wilsons Promontory. This was closely followed in October 1898 by a temporary reserve of 1,166 hectares at Mount Buffalo. By 1930, 11 more national parks had been reserved.

In 1956 the first National Parks Act was passed by the Victorian Parliament. This established a National Parks Authority with a membership of 11 persons, and 13 national parks were included under the Act.

In 1970 the Authority was abolished and its responsibilities divided between the Minister and the Director of National Parks. The agency then became known as the National Parks Service.

A completely new Act was passed in 1975 and this is currently the Principal Act.

Two amendments to the 1975 Act were made in 1978. These amendments greatly increased the number of parks and the area included under the National Parks Act.

AREAS RESERVED

Under the National Parks Act 1975, the Service administers two broadly different types of areas - national parks and other parks.

Both types of parks may only be reserved under the National Parks Act by an Act of Parliament. Similarly, they may only be revoked by an Act of Parliament. The Service can also manage parks which are reserved under Section 4 of the Crown Land (Reserves) Act 1978.

National Parks

The National Parks Act defines national parks in a very general way as land which is characterised by its predominantly unspoilt landscape and its flora, fauna or other features, reserved, preserved and protected permanently for the benefit of the public.

It is possible to obtain a better understanding of what is meant by the term national park in Victoria by considering the purposes for which they are established. As set out in the Act, national parks are:

- for the preservation and protection of the natural environment including wilderness areas
- for the protection and preservation of indigenous flora and fauna and of features of scenic or archaeological, ecological, geological, historic or other scientific interest
- for the study of ecology, geology, botany, zoology and other sciences relating to the conservation of the natural environment
- for use by the public for the purposes of enjoyment recreation or education.

Other Parks

Under the Act, "Other Parks" are defined more precisely than national parks. They can be:

- . areas with scenic, historical, archaeological, biological, geological or other features of scientific interest that are worthy of preservation but, whether by reason of the limited size of the areas or the limited significance of the features, are not suitable for reservation as national parks
- . areas that demonstrate man's effect on his environment whether through his agricultural or pastoral pursuits or otherwise
- . areas in or adjacent to urban areas of natural beauty or interest or otherwise suitable for recreational use
- . areas of natural beauty or interest primarily for recreational and educational use but parts of which may be used for primary industry, hunting, shooting, fishing or other uses appropriate to the areas
- . areas in their natural state for scientific study or reference.

The National Parks Act 1978 also provides for the Service to control additional areas on 26th April, 1980. The number of National Parks will remain unchanged but the area will be increased to 483,600 ha., while the number of Other Parks will be increased to 27 with a total area of 291,000 ha.

A recent feature of Victoria's park system is that we now adjoin parks across the borders of New South Wales and South Australia. On the New South Wales border Croajingolong National Park links with Nadgee Nature Reserve, Coopracambra State Park links with Nungatta National Park and Tingaringy National Park links with Kosciusko National Park, while the Big Desert Wilderness adjoins the Scorpion Springs and Mount Shaugh Conservation Parks of South Australia.

Another feature is the long length of coastline managed under the National Parks Act. The three National Parks (Croajingolong, Wilson Promontory and Port Campbell) and the three Coastal Parks (Gippsland Lakes, Cape Schanck and Discovery Bay) cover approximately one-third of Victoria's coastline.

ADMINISTRATION

The Service at 30th January, 1979 employed 365 persons; 76 in Head Office in Melbourne, 258 in District Offices and parks and 31 temporary vacation students and research workers.

Under the Minister for Conservation, the Director of National Parks is responsible for the administration of the National Parks Act and for the control and management of the parks. He is assisted by a Deputy Director. Head Office is organised into five branches as listed below.

- (a) The Administration Branch is responsible for financial, administrative, personnel, stores and office management functions. It receives assistance from the Ministry for Conservation's centralised services, which are used by all agencies within the Ministry. The Secretary is head of the Branch.

- (b) The Park Management Branch is responsible for the development, maintenance and management of the parks. Management is decentralised into Districts with the District Superintendents being responsible to the Chief Park Management Office. There are nine Districts throughout the State, each District Office being staffed by a District Superintendent, a District Chief Ranger, a clerk and a typist.
- (c) The Park Protection Branch is responsible for fire protection.
- (d) The Resources and Planning Branch is responsible for research (which in many cases is carried out by academic institutions), investigation of areas which are proposed as new parks or for addition to parks and the preparation of Plans of Management for new and existing parks.
- (e) The Interpretation Branch is responsible for public relations, publicity, information and environmental education.

National Parks Advisory Council - The Council consists of six members (including a Chairman) appointed by the Governor-in-Council to represent various conservation and community interests, together with the Director. Its function is to advise the Minister generally on the administration of the Act and on any particular matter on which the Council's advice is sought by the Minister.

Advisory Committees - Advisory committees exist for three national parks - Wyperfeld, Fraser and Mt. Buffalo. The function of an advisory committee is to make recommendations to the Director regarding the care and control of the park for which it is appointed.

Fire Protection Committee - Under an agreement between the Forests Commission and the Service, a joint Forests Commission/National Parks Service Fire Protection Committee has been established. The Committee facilitates and co-ordinates the preparation of fire protection plans for the parks, reviews such plans and proposes budgets and programmes of works to implement the plans.

#### SOME OTHER ADMINISTRATIVE BODIES AND THEIR RESPONSIBILITIES

1. Ministry for Conservation - Co-ordination of environmental management and land utilisation, environmental studies, marine studies, conservation planning, environmental assessment.

Agencies of the Ministry include -

- (a) Fisheries and Wildlife Division - Protection of wildlife, regulation of fishing, research and management of wildlife reserves.
- (b) Land Conservation Council - Recommendations on balanced use of public lands, declaration of parks, etc. Advice on use of land in water supply catchment areas.
- (c) Soil Conservation Authority - Soil conservation, erosion control and reclamation, farm dams, recommendations for use of land in alpine areas and land in proclaimed water supply catchments.
- (d) Victoria Archaeological Survey - Protection of Aboriginal relics, and Archaeological research.
- (e) Victoria Conservation Trust - Trust by means of which people can bequeath or give properties or funds to the community for conservation purposes.

2. Department of Crown Lands and Survey - Tenures, management and reservation of public lands, destruction of vermin and noxious weeds, land survey and mapping.

SOME OTHER ADMINISTRATIVE BODIES AND THEIR RESPONSIBILITIES (Contd)

3. Forests Commission - Management of State Forests, forest parks and forest recreation.
4. Department of Youth, Sport and Recreation - Leisuretime pursuits .
5. State Co-ordination Council - Formulation, evaluation and co-ordination of State programmes. Recommends planning policies. Over 40 members, including Director of National Parks.
6. Town and Country Planning Board - Supervises preparation of planning schemes.
7. State Rivers and Water Supply Commission - Rural water resources, rivers, streams, reservoirs, irrigation schemes, etc.
8. Melbourne and Metropolitan Board of Works - Melbourne's water supply, sewerage and town planning body. For town planning purposes it is responsible to the Ministry for Planning. Planning activities include management of metropolitan parks.

(Discussion on the above paper appears at page 56 of Volume II of the proceedings).

As at 26th April, 1979, the following National Parks and Other Parks are managed by the National Parks Service of Victoria:

National Parks

|     |                                     |                    |
|-----|-------------------------------------|--------------------|
| 1.  | Alfred N.P.                         | 2,300 ha.          |
| 2.  | Baw Baw N.P.                        | 13,300 ha.         |
| 3.  | Brisbane Ranges N.P.                | 7,470 ha.          |
| 4.  | Bulga N.P.                          | 80 ha.             |
| 5.  | Burrowa-Pine Mountain N.P.          | 17,300 ha.         |
| 6.  | Churchill N.P.                      | 193 ha.            |
| 7.  | Croajingolong N.P.                  | 86,000 ha.         |
| 8.  | Fern Tree Gully N.P.                | 459 ha.            |
| 9.  | Fraser N.P.                         | 3,750 ha.          |
| 10. | Glenaladale N.P.                    | 183 ha.            |
| 11. | Hattah Lakes N.P.                   | 17,800 ha.         |
| 12. | Kinglake N.P.                       | 5,836 ha.          |
| 13. | The Lakes N.P.                      | 2,380 ha.          |
| 14. | Lind N.P.                           | 1,166 ha.          |
| 15. | Little Desert N.P.                  | 35,300 ha.         |
| 16. | Lower Glenelg N.P.                  | 27,300 ha.         |
| 17. | Morwell N.P.                        | 140 ha.            |
| 18. | Mount Buffalo N.P.                  | 11,000 ha.         |
| 19. | Mt. Eccles N.P.                     | 400 ha.            |
| 20. | Mt. Richmond N.P.                   | 1,707 ha.          |
| 21. | Organ Pipes N.P.                    | 85 ha.             |
| 22. | Port Campbell N.P.                  | 700 ha.            |
| 23. | Snowy River N.P.                    | 26,000 ha.         |
| 24. | Tarra Valley N.P.                   | 140 ha.            |
| 25. | Tingaringy N.P.                     | 18,000 ha.         |
| 26. | Wilsons Promontory N.P.             | 49,000 ha.         |
| 27. | Wyperfeld N.P.                      | 100,000 ha.        |
|     | <b>TOTAL AREA OF NATIONAL PARKS</b> | <b>422,989 ha.</b> |

Note that on 26th April, 1979, three existing national parks, Captain James Cook, Mallacoota Inlet and Wingan Inlet were incorporated in Croajingolong National Park.

Other Parks

|                           |                       |                    |
|---------------------------|-----------------------|--------------------|
| 1.                        | Cape Nelson S.P.      | 210 ha.            |
| 2.                        | Cathedral Range S.P.  | 3,570 ha.          |
| 3.                        | Coopracambra S.P.     | 14,500 ha.         |
| 4.                        | Holey Plains S.P.     | 10,450 ha.         |
| 5.                        | Melba Gully S.P.      | 48 ha.             |
| 6.                        | Mt. Samaria S.P.      | 7,600 ha.          |
| 7.                        | Mt. Worth S.P.        | 423 ha.            |
| 8.                        | Nepean S.P.           | 908 ha.            |
| 9.                        | Pink Lakes S.P.       | 50,700 ha.         |
| 10.                       | Warby Range S.P.      | 2,821 ha.          |
| 11.                       | Warrandyte S.P.       | 218 ha.            |
| 12.                       | Werribee Gorge S.P.   | 375 ha.            |
| 13.                       | Cape Schanck C.P.     | 994 ha.            |
| 14.                       | Discovery Bay C.P.    | 8,450 ha.          |
| 15.                       | Gippsland Lakes C.P.  | 15,500 ha.         |
| 16.                       | Big Desert Wilderness | 113,500 ha.        |
| 17.                       | Gellibrand Hill Park  | 266 ha. *          |
| 18.                       | Steiglitz Park        | 655 ha.            |
| 19.                       | Haining Farm          | 64 ha.             |
| 20.                       | Pirianda Garden       | 11 ha. *           |
| TOTAL AREA OF OTHER PARKS |                       | <u>231,263 ha.</u> |

S.P. = State Park, C.P. = Coastal Park

\*Managed by the National Parks Service but not declared under the National Parks Act.

SITUATION REPORT - WESTERN SAMOAPREAMBLE

Western Samoa is an independent state situated in the middle of the Pacific with a population of 152,000 people. In 1974 the Government passed the National Parks and Reserves Act and since that time has been active in its implementation with the setting aside of one National Park and two Reserves - A number of proposals are either in the early stages of implementation or are being evaluated at present. An active programme for training the small staff is under way both within the country and overseas.

GEOGRAPHY

Western Samoa consists of two large islands and several small ones. Total land area is approximately 2,934 square km., located between 13 and 15 degrees South latitude and 168 and 173 degrees West longitude.

The two main islands are Upolu (which is the most heavily populated) and Savaii. Upolu is 1,100 square km., extending about 70 km. from east to west and up to 24 km. from North to South. Savaii is 1,820 km. square, it is also about 70 km. across but is 35 km. wide.

The islands have numerous volcanic peaks the highest being Mt. Silisili (1,850 metres) on Savaii and Mt. Fito (1,100 m) on Upolu. Savaii has a central core of volcanic peaks surrounded by a ring of lava based plateaux, then lower hills and coastal plains. Upolu has a chain of volcanic peaks running from one end to the other, with hills and coastal plains on either side.

Much of the coast is surrounded by coral reef and lagoons.

The climate produces a dense growth of luxuriant forests although soils are generally poor.

CLIMATE

Western Samoa has a tropical climate. There is little seasonal variation in temperature, the mean daily temperature is about 26°C, temperatures rarely go outside the 18-32°C range. Humidity is high, the yearly average being 83%.

The south and southeast windward areas receive from 5,000 to 7,000 mm. of rain annually, the leeward side of the islands (northerly) receive 2,500 - 3,000 mm. of rain. There is a marked dry season between May and August.

Although Samoa lies outside the main hurricane belt, occasional storms are experienced.

POPULATION AND THE PEOPLE

The present estimated population is 152,000, of this about 110,000 live on Upolu and 42,000 on Savaii. Apia is the only sizeable town, having a population of about 36,000.

In recent years large numbers of Western Samoans have migrated overseas. The main destinations have been New Zealand, American Samoa, Hawaii, and California, U.S.A.

In the Samoan Social System, the basic unit is the family or an aggregate of families, - called "aiga". This is reflected through into land ownership which takes the form of "customary" lands.

"Samoan" is the local language, although English is widely spoken and is the language used in conducting business in government departments and in commerce.

#### GOVERNMENT POLICY

The Government of Western Samoa is currently considering a draft National Policy on Conservation of the Environment these policies being aimed at preserving examples of the natural environment and the wise use of natural resources for the economic betterment and welfare of present and future generations.

Initial policies are to work towards the implementation of the legislation by the early declaration of Parks and Reserves, initially on State controlled land, and to increase public awareness of environmental values through all available avenues.

In 1978 the Government set aside the first Friday in November as Arbor day and proclaimed it a public holiday.

#### ENVIRONMENTAL LEGISLATION

The "National Parks and Reserves Act" was passed in 1974. This Act is administered by the Agriculture and Forestry Department through the Forestry Division. It provides for the declaration of public land not less than 600 hectares in area (except for islands) as national park. Parks will be preserved in perpetuity for the benefit and enjoyment of the people; will be administered to preserve them as far as possible in their natural state; will preserve the flora and fauna; and maintain their value for soil, water, and forest conservation. Subject to any special conditions or regulations the Public will have freedom of access to enjoy the benefits of parks including inspiration, aesthetic appreciation, enjoyment and recreation.

The act also provides for the setting aside of:-

Nature Reserves - to protect, conserve, and manage flora, fauna or aquatic life.

Recreation Reserves - although not stated in the legislation this covers outdoor natural or wild areas rather than developed playgrounds and sports fields.

Historic Reserves - of national historical, legendary or archaeological significance.

Other Reserves - can be declared for specified purpose.

The Forests Act 1967 enables control over land use by declaration as Protected Land.

The Water Act 1965 provides for the prohibition of the removal of protective vegetation within 60 metres of rivers.

#### AREAS PRESERVED

##### Tusitala Historic and Nature Reserve

A 1968 ordinance set aside approximately 128 hectares on Mt. Vaea, which is subsequently being incorporated into the 1974 National Parks and Reserves Act. This area includes much of a small hill located in a commanding position immediately behind Apia. Robert Louis Stevenson (Tusitala) was buried on Mt. Vaea near the summit. Additional land has

Tusitala Historic and Nature Reserve (Contd)

recently been added at the base and this area together with the adjacent slopes are to be developed as a botanical garden together with picnicking and walking areas.

O Le Pupu - Pu'e National Park

This area of 3,000 hectares was set aside by the Government as the country's first National Park in March 1978, although it has not yet been formally gazetted. This latter matter awaits the survey of the boundaries. The land was previously government land and stretches from the southern coast to the dividing ridge at Mt. Fito on Upolu island, thus providing a range of ecotypes found on the island. It is hoped that O Le Pupu - Pu'e will serve as a demonstration area and thereby foster wider public and political support for the concept of National Parks and Reserves.

Togitogiga Recreation Reserve

This reserve was set aside by Government in 1978. It is a small riverside area containing 2 waterfalls and a very popular swimming hole. It has recently been surveyed to enable it to be formally gazetted as a Reserve. The area lies adjacent to the O Le Pupu-Pu'e National Park and the proposed Park Headquarters area.

PROPOSALS

There are a number of areas currently under consideration for reservation.

Palolo Deep is a small area of coral reef close to Apia. It is proposed to improve public access to the area and develop an underwater nature trail. Work on this project is currently underway.

Lake Lanuto'o

This area is also on Upolu island and is situated on the main divide to the West of O Le Pupu-Pu'e National Park. The proposal is centred around Government land but includes Customary land, Freehold, and Government Corporation Land.

The area has significant recreation, and soil and water catchment protection values.

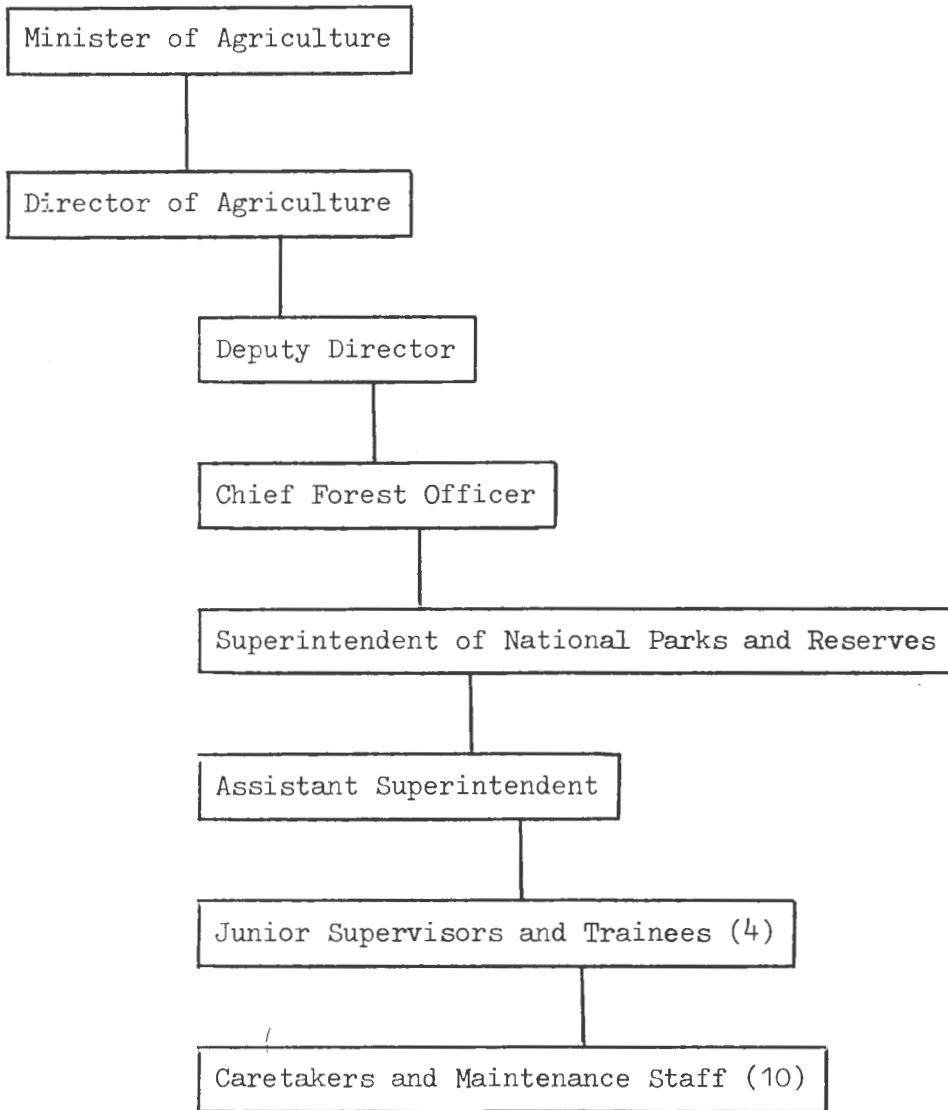
ADMINISTRATION

The National Parks and Reserves System is administered and managed by the Forestry Division of the Department of Agriculture and Forests. The National Parks and Reserves Section is gradually developing and is currently being assisted by a Senior Parks Ranger from New Zealand, being jointly sponsored by the New Zealand Government and an A.G.N./W.W.F. grant.

At present one trainee is in New Zealand on a two year National Park training course.

The majority of staff are field based, administrative and logistic support coming from the departments administrative pool.





(Discussion on the above paper appears at page 59 of Volume II of the proceedings).

SITUATION REPORT - WESTERN AUSTRALIAPREAMBLE

Western Australia is pleased to be associated with the Second South Pacific Conference on National Parks and Reserves.

The Government of New South Wales is to be congratulated in having arranged for this conference to be held to coincide with the celebration of the centenary of Royal National Park.

A brief description of the National Parks and Nature Reserves system follows.

GENERAL

Western Australia has an area of approximately 240 million hectares, and is the western third of Australia. It has a climate which ranges from the temperate zone in the south through a series of desert areas to the tropics in the north. There is therefore a broad range of habitat types available in the State for consideration as national parks and nature reserves.

The State is sparsely populated with the major portion of its one million people living in the capital city of Perth. Most of the remainder of the people, except those living in Kalgoorlie, live in or near coastal towns from Esprance in the south to Wyndham in the north of the state.

GOVERNMENT POLICY

Western Australia has established two systems of conservation reserves: that of national parks and that of nature reserves.

The national parks are managed by the National Parks Authority and the nature reserves by the Western Australian Wildlife Authority. Although there is a high degree of co-operation between the two Authorities, each function is a separate entity giving effect to its responsibility. The national parks have an overriding purpose of people usage, although there may be areas, sometimes large, which have a function of being habitat for the plants and animals of the region. The nature reserves, on the other hand, are primarily for the purpose of providing for the persistence of the assemblage of plants and animals although for the most part members of the public are not included. In nature reserves there are few, if any, public facilities.

The functions of the National Parks Authority in relation to national parks may be set out as :-

- (a) conserve the natural environment, preserve and enhance natural beauty;
- (b) control and manage, maintain, study, care for and restore the natural environment;
- (c) provide and maintain access and facilities for public recreation and utilisation whereby the community can enjoy the beauty of the natural environment.
- (d) plan and control recreation and utilisation to be compatible with the preservation of the natural environment; and
- (e) provide information services and educate the community in relation to the use and enjoyment of the facilities available, and to the understanding and appreciation of the natural features.

The Wildlife Authority has acquired land to provide for :-

- (a) Large areas typical of the primitive environment and known to include a substantial proportion of the plant and animal communities of the region;
- (b) Areas containing the more spectacular indigenous animals and plants (e.g. the marsupials and the Banksias) and for the preservation of rare species threatened with extinction.
- (c) Areas of scientific importance such as places where animals or plants occur well outside their main geographical range, or areas where individuals show variation from typical members of the species.
- (d) Offshore islands which contain examples of the primitive environment of Australia before the introduction of exotic plants and animals, or which harbour animals now extinct or very rare on the mainland or which are important breeding grounds for marine animals such as turtles, sea birds and seals.
- (e) Wetlands which are important for the conservation of aquatic plants and animals, especially waterbirds.
- (f) Areas throughout regions of extensive clearing or alteration of the natural bush. The aim of these nature reserves is to permit the persistence of as much of an area's plants and animals as possible, to add to the diversity of the landscape and retain its unique Australian character, to provide stopping places for migratory birds and other animals and to provide places where people can observe or study wildlife.

#### LEGISLATION

The National Parks Authority has been established under the National Parks Authority Act, and the Wildlife Authority under the Western Australian Wildlife Conservation Act.

#### AREAS RESERVED

##### (a) National Parks

By the end of 1978, 42 national parks, each with an area of over 1,000 ha. were vested in the National Parks Authority, together with 19 smaller national parks and conservation and recreation reserves ranging down to 2 ha. The largest national park is Rudall River, 1,569,459 ha., followed by Hamersley Range, 590,176 ha. The total area of national parks over 1,000 ha. each is 4,514,956 ha. plus 3,352 ha. in smaller reserves, a grand total of 4,518,308 ha.

##### (b) Nature Reserves

On 31 October, 1978 there were 1,014 nature reserves with a total area of 8,403,120 ha. or about 3.5% of the state. Some 452 reserves with a total area of 8,093,458 ha. were vested in the Western Australian Wildlife Authority.

Most nature reserves are relatively small - the fifteen largest account for 7,605,279 ha.; the average size of the remainder is about 800 ha.

The largest nature reserve in Western Australia is the Great Victoria Desert Nature Reserve of 2,495,777 ha. The smallest has an area of less than one hectare.

ADMINISTRATION

The National Parks Authority has executive functions over all aspects of the operating national parks. The Director is responsible to, but is not a member of the National Parks Authority.

The Western Australian Wildlife Authority has neither finance nor staff, but is serviced by the Department of Fisheries and Wildlife. The Director of Fisheries and Wildlife is also Chairman of the Wildlife Authority. The Authority has two major functions: firstly executive responsibility for the State's nature reserves, and secondly an advisory role to Government on Wildlife Conservation generally.

(Discussion on the above paper appears at page 58 of Volume II of the proceedings).

## SITUATION REPORT

UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

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PREAMBLE:

The National Park Service is an agency located within the Department of Interior. The long-range objectives of the National Park Service are:

To conserve and manage for their highest purpose the natural, historical, and recreational resources of the National Park System.

To provide for the highest quality of use and enjoyment of the National Park System by increased millions of visitors in the years to come.

To develop the National Park System through inclusion of additional areas of scenic, scientific, historical and recreational value to the Nation.

To communicate the cultural, natural, inspirational and recreational significance of the American heritage as represented in the National Park System.

To co-operate with others to protect and perpetuate natural, cultural, and recreational resources of local, State, regional and international importance for the benefit of humankind.

In order to fulfil these objectives the Service performs the following functions:

Manages a National Park System composed of 320 natural, historic, recreational and cultural parks embracing over 31 million hectares in 49 of the 50 States, Puerto Rico, the Virgin Islands, and Guam, together with the National Capital Park System of metropolitan Washington, D.C.

Conducts the recreation aspects of Federal Water Project implementation studies within the purview of the Federal Water Project Recreation Act, including the updating of feasibility studies where warranted.

Conducts Congressionally authorized studies of Wild and Scenic Rivers.

Conducts Congressionally authorized National Scenic Trails Studies.

Provides technical and professional assistance to Federal, State, and local governments, and to public and private owners of natural, cultural, and urban properties.

Through Co-operative agreements, administers recreation on lands under the jurisdiction of other Federal agencies.

Provides professional and administrative support to the National Park System Advisory Board; National Park Foundation; and more than 20 other national, regional, and park advisory boards.

GEOGRAPHICAL DETAILS OF AREA REPRESENTED:

The United States is composed of 50 states and the District of Columbia, the location of the Nation's Capital. Other territories and possessions include the Panama Canal Zone, Virgin Islands, American Samoa and Guam.

All but two of the states are located between latitudes  $25^{\circ}$  and  $48^{\circ}$  North. The other two states, Alaska and Hawaii, are relatively new additions to the country's history and do not share a common boundary with any other states. Alaska is bordered by Canada to the East and located between latitudes  $52^{\circ}$  and  $72^{\circ}$  North. Hawaii, consisting of a small group of islands in the Pacific Ocean is located between latitude  $18^{\circ}$  and  $22^{\circ}$  North.

The aggregate area under jurisdiction of the United States is 940,089,947 hectares. This includes 919,574,653 hectares of land and 17,162,669 hectares of inland water. The remaining 3,352,624 hectares represent the area of U.S. possessions and territories.

To the north, the United States shares a common boundary of 6,400 kilometres with Canada. To the south, it shares a common boundary of 3,200 kilometres with Mexico. Three oceans and the Gulf of Mexico, measuring approximately 20,800 kilometres, form the general coastline of the country.

The United States is basically made up of two bands of highland running parallel north and south through a vast area of lowland. This lowland consists of over half the entire land area. The Western part of the country is also highland and is much greater and higher than the upland areas mentioned as bands. This area consists of numerous mountains, plateaus and rock formations which account for one third of the land area in the country. In general, the topography of the eastern part of the country is characterized as more favourable for the growth of both fauna and flora.

CLIMATE:

The climate of the United States can be characterized as diverse, depending on the region and season. The climate can range from that of the tropics of Hawaii to the highly variable climate of the U.S. Mainland, to the extremely cold subarctic climate of Alaska. The wide variance of climate in the United States is caused by the unpredictable flow of huge air masses which originate or flow from the three bordering oceans, Canada or the Gulf of Mexico. The eastern part of the United States usually experiences a generous amount of rainfall and moisture throughout the year. The western half, particularly the southwest experiences semi-arid to arid weather. There is usually little rainfall within this region.

POPULATION:

The current population of the United States is approximately 216 million. It ranks fourth among the countries having the largest population. It also accounts for about 6% of the world's populace. Population growth averages a little over 1% annually. Estimates for the period between 1970 and 1980 are projected to be significantly higher because of an increasing trend in birth rates.

Approximately 73% of the U.S. population reside in large metropolitan areas which are predominate in the eastern half of the country. The median age in the United States is 29.4 years. Females (51%) slightly outnumber males (49%).

MISSION AND POLICY:

The National Park Service was established in the Department of the Interior by the Act of Congress approved August 25, 1916. The Act assigned to the Service administration of "the several national park and national monuments which are now under the jurisdiction of the Department of the Interior, and of the Hot Springs Reservation in the State of Arkansas, and of such other national parks and reservations of like character as may be hereafter created by congress."

The purpose of the parks, as defined by the Act, is to:  
 "...conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such means as will leave them unimpaired for the enjoyment of future generations."

Subsequent Acts, Executive Orders and Proclamations have expanded the responsibilities and activities of the Service and defined its mission:

To manage the National Park System; and  
 To co-operate with other Federal agencies, Indians, States, and local governments, private citizen organizations, and international organizations and countries in the preservation and interpretation of our Nation's and our world's natural and cultural heritage."

Thus, the mission of the National Park Service is based upon the Federal laws and the interpretation and emphasis given to those laws by the Administration. Presidential direction and influence occur through Executive Orders and the establishment of program priorities. The Secretary of the Interior provides direct influence to the mission through Secretarial Orders, policy determinations and through day-to-day management decisions.

Congress established Yellowstone as the first National Park in the Act of March 1, 1872. The Act laid down a new public land policy; namely, that portions of the public lands were to be

....reserved and withdrawn from settlement, occupancy, or sale under the laws of the United States, and dedicated and set apart as a public park or pleasuring-ground for the benefit and enjoyment of the people....

In addition to the Act establishing Yellowstone National Park and the National Park Service, other significant legislative enactments of primary significance are as follows:

The Antiquities Act of 1906 provided authority for the President, by proclamation, to set aside as National Monuments

"....historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon lands owned or controlled by the Government of the United States...."

The Act of August 21, 1935, was the first act of Congress to establish

....a national policy to preserve for public use historic sites, buildings and objects of national significance for the inspiration and benefit of the people of the United States.

The Act also directed the Secretary of the Interior to carry out wide-ranging programs in the field of cultural properties' management.

MISSION AND POLICY (Contd)

The Wilderness Act approved September 3, 1964, established a National Wilderness Preservation System "...to secure for the American people of present and future generations the benefits of an enduring resource of wilderness."

The United States is a State Party Member of the World Heritage Convention, and the National Park Service has been designated as the lead agency in co-operation with the Department of State and the Council on Environmental Quality in furthering the objectives of the Convention in preservation of the world's natural and cultural heritage.

ENVIRONMENTAL LEGISLATION:

A significant resources management action occurred in December, 1978 when President Carter, using his authority under the Antiquities Act of 1906, designated 22.7 million hectares of Alaska National Interest Lands as 17 new national monuments. This proclamation covers 13 units to be administered by the National Park Service, two units to be managed by the Fish and Wildlife Service and two National Forest units which will continue to be managed by the Forest Service, an agency of the Department of Agriculture. The Secretaries of Interior and Agriculture recommended that the President designate the monuments.

Included within the new monuments are the nation's largest unpolluted river valley, portions of the nation's highest peak, the nation's largest group of peaks over 457 decameters, the place where man may have first entered the New World, an archaeological record of man's past in the Arctic going back at least 4,000 years, prime habitat for Alaska brown bears, nesting sites for millions of waterfowl that return each fall to 47 other states, and the nation's largest remaining virgin forest. These proclamations will protect scientific, cultural, historic and living resources no longer available in any other part of our country.

The monuments proclaimed by the President are: Aniakchak NM (141,700 hectares); Bering Land Bridge NM (1,052,632 hectares); Cape Krusenstern NM (226,721 hectares); Denali NM (enlargement of Mount McKinley National Park 1,578,947 hectares); Gates of the Arctic NM (3,319,833 hectares); Glacier Bay NM (enlargement 222,672 hectares); Katmai NM (enlargement 566,802 hectares); Kenai Fjords NM (230,769 hectare); Kobuk Valley NM (688,259 hectares); Lake Clark NM (1,012,146 hectares); Noatak NM (2,348,441 hectares); Yukon-Charley NM (688,249 hectares); Yukon Flats NM (4,291,498 hectares); Becharof NM (485,830 hectares); Admiralty Island (Forest Service, 445,344 hectares); Misty Fjords (Forest Service, 890,688 hectares).

AREAS RESERVED:

The National Park System of the United States comprises 320 areas covering nearly 31 million hectares in 49 states, the District of Columbia, Puerto Rico, the Virgin Islands and Guam.

Areas added to the National Park System for their natural values are expanses or features of land or water of great scenic and scientific quality and are usually designated as national parks, monuments, preserves, seashores, lakeshores, or riverways. Such areas contain one or more distinctive attributes such as forest grasslands, tundra, desert estuary, or river systems; they may contain "windows" on the past for a view of geological history, imposing landforms such as mountains, mesas, thermal areas and caverns; and they may be habitats of abundant or rare wildlife and plantlife.



AREAS RESERVED (Contd)

National Park - generally covers a large area. It contains a variety of resources and encompasses sufficient land or water to ensure adequate protection of the resources.

National Monument - is intended to preserve at least one nationally significant resource. It is usually smaller than a national park and lacks its diversity of attractions.

National Preserve - established primarily for the protection of certain resources. Activities such as hunting and fishing or the extraction of minerals and fuels may be permitted if they do not jeopardize the natural values.

National Lakeshore - focuses on the preservation of natural values while simultaneously providing water-oriented recreation. The existing four are all located on the Great Lakes.

National Rivers and Wild and Scenic Rivers and Riverways - preserve ribbons of land bordering on free-flowing streams which have not been dammed, channelized or otherwise altered by man. Besides preserving rivers in their natural state, these areas provide opportunities for outdoor activities such as hiking, canoeing and hunting.

National Seashore - focuses on the preservation of natural values while simultaneously providing water-oriented recreation. The national seashores are on the Atlantic, Gulf and Pacific coasts.

Although best known for its great scenic parks, more than half the areas of the National Park System preserve places and commemorate persons, events and activities important in the Nation's history. These range from archaeological sites associated with prehistoric Indian civilization to sites related to the lives of modern Americans. Historical areas are customarily preserved or restored to reflect their appearance during the period of their greatest historical significance.

National Historic Site - has been the title most commonly applied by Congress in authorizing the addition of such areas to the National Park System. A variety of titles - national military park, national battlefield park, national battlefield site, and national battlefield - have been used for areas associated with American military history. But other areas such as national monuments and national historical parks may include features associated with military history. National historical parks are commonly areas of greater physical extent and complexity than national historic sites.

National Memorial - an area that is primarily commemorative. But it need not be a site or structure historically associated with its subject.

National Recreation Area - encompasses lands and water set aside for recreational use by acts of Congress. Now includes major areas in urban centres.

National Parkway - encompasses ribbons of land flanking roadways and offers an opportunity for leisurely driving through areas of scenic interest. Not designed for high speed point - to - point travel. Besides the areas set aside as parkways, other units of the National Park System include parkways within their boundaries.

National Trail - provides maximum outdoor recreation potential and for the conservation and enjoyment of nationally significant scenic, historic, natural or cultural qualities of the areas through which such trails pass.

SUMMARY OF AREAS AND ACREAGESADMINISTERED BY THE NATIONAL PARK SYSTEMFEBRUARY 27, 1979

| <u>Number</u> | <u>CLASSIFICATION</u>   | <u>Hectares</u>   |
|---------------|---|-------------------|
| 39            | National Parks  | 6,493,389         |
| 92            | National Monuments  | 22,111,466        |
| 2             | National Preserves  | 265,000           |
| 4             | National Lakeshores   | 79,536            |
| 10            | National Rivers<br>(Includes Wild and Scenic Rivers<br>and Riverways) | 211,616           |
| 10            | National Seashores  | 241,965           |
| 59            | National Historic Sites   | 7,275             |
| 22            | National Memorials  | 3,215             |
| 11            | National Military Parks   | 14,033            |
| 3             | National Battlefield Parks  | 2,737             |
| 9             | National Battlefields   | 4,277             |
| 1             | National Battlefield Site   | 5                 |
| 22            | National Historical Parks   | 42,450            |
| 17            | National Recreation Areas   | 1,482,405         |
| 4             | National Parkways   | 65,111            |
| 1             | National Trail  | 21,066            |
| 14            | Other Areas   | 5,636             |
| <u>320</u>    |   | <u>31,061,191</u> |

ADMINISTRATION:Regional Divisions of the National Park System:

All areas administered by the National Park Service are managed by nine regional offices located throughout the country. These offices function as the principle administrative bodies which represent the Service as well as the Director within a designated region. The regions and states (or areas) within their purview are as follows:

NORTH ATLANTIC REGION

Connecticut  
Maine  
Massachusetts  
New Hampshire  
New Jersey  
New York  
Rhode Island  
Vermont

MIDWEST REGION

Illinois  
Indiana  
Iowa  
Kansas  
Michigan  
Minnesota  
Missouri  
Nebraska  
Ohio

NATIONAL CAPITAL REGION

Washington D.C., Suburban  
Maryland and Northern Virginia

ROCKY MOUNTAIN REGION

Colorado  
Montana  
North Dakota  
South Dakota  
Utah  
Wyoming

MID-ATLANTIC REGION

Delaware  
Maryland  
Pennsylvania  
West Virginia

SOUTHEAST REGION

Alabama  
Florida  
Georgia  
Kentucky  
Mississippi  
North Carolina  
Puerto Rico/Virgin Islands  
South Carolina  
Tennessee

SOUTHWEST REGION

Arkansas  
Oklahoma  
Louisiana  
Texas  
New Mexico

WESTERN REGION

Arizona  
California  
Hawaii  
Nevada

PACIFIC NORTHWEST REGION

Alaska  
Idaho  
Oregon  
Washington

The National Park Service also manages two Service Centres which provide technical assistance and support to all areas within the System. These services range from park design and planning to the preparation of special publications. Two training centres, managed by the Washington Office, supplement the wide scope of training opportunities offered within each Region.

Organization (Washington Office)

The Headquarters Office of the National Park Service is located within the U.S. Department of the Interior Building in Washington D.C. The primary function of this office is to develop Servicewide policy, provide general guidance and support to the regions, and to co-ordinate and maintain professional relationships with Congress as well as other agencies and organizations. The Washington Office includes a Directorate and professionals representing all disciplines of park administration and management to advise the Director and share in decision-making process. An organizational chart of the National Park Service is attached.

Advisory Boards and Commissions

National Park System Advisory Board (formerly the Secretary's Advisory Board on National Parks, Historic Sites, Buildings and Monuments).

This Advisory Board was established in 1935. The duties of the Board are solely advisory. Its function is to render advice to the Secretary of the Interior on matters relating to the National Park System, to other related areas and to the administration of the Historic Sites Act of 1935. It considers and makes recommendations on essentially all proposals for the establishment of units of the National Park System, and upon broad policy concerning the management, development, use and preservation of values in the National Park System.

Other Advisory Boards

The National Park Service also has the administrative responsibility for 23 other advisory committees: two of these are Presidential, three are administratively established and 18 are statutory advisory committees.

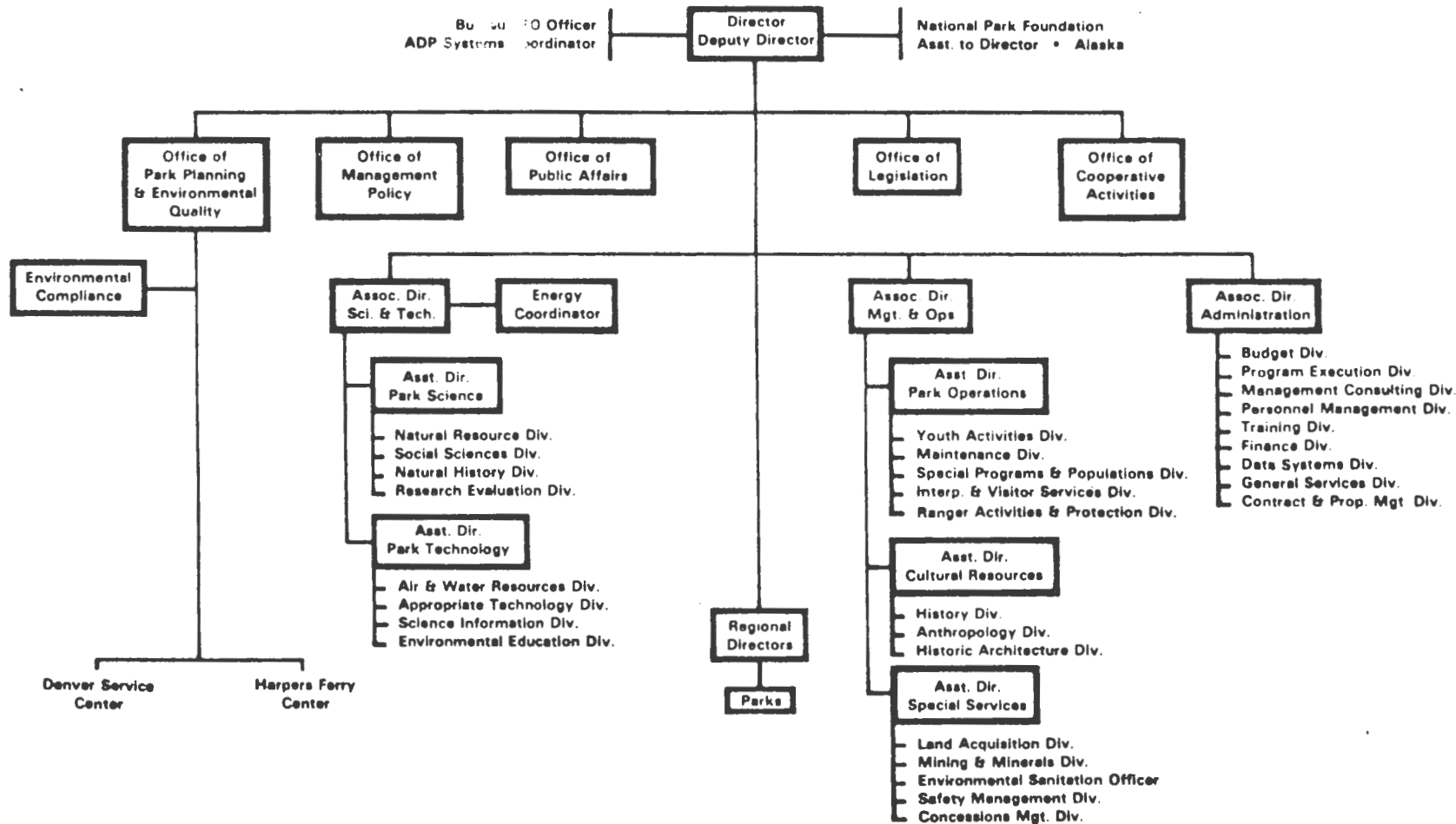
Other Advisory Boards

In general, the objective of all advisory committees is limited to rendering advice on subjects presented to them for their consideration. Advisory committees serve to provide public input into the decision-making process and offer an excellent opportunity for two-way communication so that both the public and private sectors have better understandings of the problems and positions of the other.

(Discussion on the above paper appears at page 70 of Volume II of the proceedings).



# NATIONAL PARK SERVICE



KEYNOTE ADDRESS - SENATOR THE HON. J.J. WEBSTERTHE MINISTER FOR SCIENCE AND THE ENVIRONMENT."MAN IN THE SOUTH PACIFIC - PAST AND PRESENT."

Australia is honoured to be the host nation for the Second South Pacific Conference on National Parks and Reserves and I extend a warm welcome to all participants.

It is singularly appropriate that Sydney is the venue of this second conference. This year is the centennial of Royal National Park, the second national park ever to be established, only seven years after Yellowstone in the United States. On behalf of the Commonwealth I am pleased to pay tribute to the remarkable foresight of those New South Welshmen who were the originators of the National Park movement in Australia.

Our South Pacific region is a vast area of sea and landscapes which have been used by people over countless generations. Besides its aesthetic attractions, the region is of great cultural and biological significance. There is an unusual richness of plant and animal species. Many of its islands were regarded by the first European seafarers as tropical paradises. We have a responsibility to look after this rich natural heritage whilst benefiting from modern developments.

While the traditional ways of life differed, they were finely tuned to natural processes and the continuing use of natural resources. Of necessity many of the ancient sea and land use practices were conservation oriented. Interwoven with socio-religious activities, they became an integral part of the cultural pattern of the people of the South Pacific.

The indigenous people intuitively respected the environment which fed, clothed and protected them. They realised the fragility of some environments in which they lived - the coastal lagoons, coral reefs, mangroves and rainforests - and adapted their demands to the capabilities of their supporting ecosystems.

However, the traditional way of life is disappearing as the technologies of the western world break through the protective barrier of isolation. The introduction of new methods of transportation and communication are bringing the indigenous people of the South Pacific into contact with people with new ideas, styles of living and working. This has affected, and undoubtedly will continue to influence the cultural heritage of the South Pacific. Tourism, industrialisation and the introduction of intensive agricultural systems based on exotic species of plants and animals are bringing about far reaching changes.

The longterm consequences of these changes on the stability and composition of South Pacific ecosystems cannot be foreseen with certainty. But change is inevitable. The challenge is to direct change to benefit the people of the region.

Australia provides good examples not only of the conflicts that can arise between conservation and development but also of the advantages to be gained from reconciling apparently conflicting interests by careful planning.

The coming of European settlers to Australia in the 18th century had a dramatic influence on the Australian environment and the Aboriginal people. The agriculture and style of living of the Europeans were totally different from those of Australian Aborigines. The Europeans in order to survive had to clear the bush and bring in the alien grazing animals and agricultural plants which have contributed so much to Australian development.

The Aboriginal nomadic and subsistence way of life, having evolved over thousands of years, had achieved some balance between land use and the needs of the population. This balance was essential for survival in a country so hostile as the Australian outback with its extremes of heat and aridity. Conservation and preservation of resources was an inherent feature of Aboriginal culture and, as with other South Pacific indigenous societies, these practices operated through a complex system of socio-religious constraints.

Through the Aboriginal Dreamtime, the actions of the past and present merge together and so prescribe codes of behaviour. Living creatures were part of the water, land and sky and Aboriginal man fitted his actions to the ecosystems that bred, nourished and claimed him.

One Dreamtime myth that illustrates this inextricable link between Aboriginals and their environment, is the story of Guragadji the Emu-Man. In the Oenpelli area of Arnhem Land there are stories about mythical serpents who live in deep waterholes during the dry season and in thunder clouds during the months of monsoonal rains. The Aboriginals fear these serpents and believe that any interference with their waterholes will have disastrous results.

When the world was young, two Aboriginal men were out hunting when they saw an emu. This emu was Guragadji, the mythical Emu-Man but the hunters did not realise this. He evaded capture by jumping into a waterhole. The Emu-Man then transformed himself into the rainbow serpent Mamaragan, surfaced from the water and swallowed both of the hunters. Mamaragan is feared by Aboriginals because if his waterhole is disturbed, his anger will flow out, destroy the culprits and cause the water to flood the countryside.

This simple story, like the Christian parables, serves to instil people with a code of conduct, in this case to look after the water resource - a vital need in a dry island continent.

Modern man also needs to temper his immediate requirements with a realisation of future needs. Generations yet to be born will judge us on our success in husbanding our resources and having a care for their inheritance.

The South Pacific region's national parks are part of this inheritance. Besides having an immense potential for educational, recreational and scientific purposes, they are an untapped biological resource of great genetic variability which may prove vital in facing the problems of the future.

The preservation in national parks of areas of land or water because of their uniqueness, wilderness values or representativeness, is accepted by virtually all governments in the region. However, the long-term establishment of national parks can only be satisfactorily achieved as a component of integrated land-use planning and if the public accepts that such areas are beneficial.

The Australian alpine areas provide a good example of the multiple benefits which accrue from relatively undisturbed areas. They cover almost 12 thousand square kilometres of south-eastern Australia and Tasmania and are important for water supply, recreation, scientific purposes and nature conservation. Water production for irrigation, hydro-electric power generation and domestic purposes vies with the demand to use those alpine areas for fishing, bushwalking, camping and skiing.

The scientific value of the vertebrate fauna, insect fauna and rich sub-alpine plant life is another significant factor to be considered. Clearly with increasing use some balance must be achieved between the development of areas for recreation and tourism and the preservation of wilderness.



Careful use-planning is needed to ensure that sufficient areas are provided for science and wilderness recreation as well as facilities for tourism and water production. Only through the rational use of resources can our present society continue its high standard of living, education and development.

The last few decades have seen an unprecedented growth in public awareness of nature conservation issues both in Australia and elsewhere. Community involvement in the decision making processes with respect to natural resource utilisation is now generally accepted. Australians have come to appreciate and accept their moral and international responsibility as custodians of Australian wildlife and wild places. This better community understanding of environmental matters, of the value of wilderness and of the need for outdoor recreation provides support for the national park movement.

Responsible stewardship of natural areas has become a common policy of governments. Australian governments have introduced new legislation, and have improved existing legislation, to meet these new circumstances. But it should not be forgotten that the desirability of reserving land for recreation and pleasure and the need to protect wildlife, were first recognised by State governments as early as the middle of the 19th century.

In 1863 Tasmania passed laws protecting some scenic areas and in 1879 the Royal National Park was established by New South Wales. South Australia's National Park (now renamed Belair Recreational Park), was created near Adelaide by a special Act of Parliament in 1891 and Victoria's first national park, at Tower Hill in the Western District, was declared in 1892.

Reservation of major areas near capital cities marked the beginning of a trend that led to the creation of many public reserves around townships and in more distant areas. From the 1840s onwards various statutes and regulations were passed to protect fauna - albeit for sporting and economic reasons.

Changes in legislative emphasis have been noticeable during the development of Australian conservation policies. Native fauna conservation and the importance of protecting habitat were recognised increasingly from the mid 1950s and this resulted in the creation of new legislation for the protection of fauna and its habitat.

The legislation directly related to national parks also underwent a change from the preservation of scenic areas for recreation and enjoyment to include other community needs such as education, wilderness protection and scientific research.

Over the years the amount of land established as national parks or equivalent reserves has grown steadily in Australia, especially from 1960. Now over a quarter of a million square kilometres are set aside as national parks or reserves. In addition, much private land and other government land, such as forests and defence areas, also serve conservation purposes.

The administration of parks and reserves has become more professional in the States and Territories with the establishment of National Parks and Wildlife Services, University and College courses have been created for the training of park managers and researchers.

The roles of the National Park Services differ in detail but one important role recognised by all is that of educating the public about the availability, purpose and role of national parks and reserves. Greater effort must be put into educational and public awareness programs because in this way people can be properly informed and be able to make rational decisions. Education is a two-way exchange system and an informed public has much to contribute to the development of nature conservation policies and practices.

Education about the value and significance of natural areas and of national parks needs to take place at different levels using a variety of methods. This should involve the traditional school system, outdoor education by rangers, special displays in national parks and the use of different media channels and special promotional activities. The programs need to be orientated at all ages and levels of society, though the old saying "the younger the better" still makes sense. The programs should be undertaken by private groups as well as government agencies and institutions.

The establishment of a national park or reserve is a complex process. Park management practices must be compatible with those used on lands adjoining the park. The harmonisation of these activities can only be effectively achieved through negotiation and consultation with neighbours.

The recent creation of Kakadu National Park on Aboriginal owned land in the Northern Territory is a step forward for nature conservation in Australia. One major objective in Kakadu is to involve Aboriginals in the planning and management of the park and to utilise their traditional skills.

Social problems arising from the influx of new people, mines and tourists, into the region and the desire of some Aboriginals to follow traditional lifestyles will need sensitive understanding. The preservation of Aboriginal paintings, the control of introduced animals such as the buffalo and the protection of endangered species will require detailed research. The integration of different uses such as conservation, scientific research, education, fishing, tourism and mining will be a complex but rewarding task to be achieved under a detailed plan of management.

The new Kakadu National Park will be one of the world's great national parks. It will harmonise the conservation of the environment with the interests of all Australians and enable the preservation of an area unique to Australia and the world for future generations.

The need to preserve cultural and natural heritage is something that Australia shares with other countries of the South Pacific region. Each country has its own specific problems and needs to develop its own approach. The Australian parks and reserves largely occur over almost 8 million square kilometres of land, whereas in the atoll nations of Tuvalu and the soon to be independent Gilbert Islands for example, parks and reserves are on 42 coral islands representing less than one thousand square kilometres of land but scattered over 7 million square kilometres of the Pacific Ocean.

These differences should not detract from the common desire to preserve our cultural and natural heritage through comprehensive systems of national parks and reserves. International co-operation is essential because many of the wildlife resources we seek to protect are not confined by national boundaries.

The importance of co-operation in nature conservation has long been recognised by Australia and is reflected in our involvement in a number of international treaties and agreements.

Australia is a signatory to several agreements including the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Agreement between the Governments of Australia and Japan for the Protection of Migratory Birds, Birds in Danger of Extinction and their Environment, the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, and the Convention Concerning the Protection of the World Cultural and Natural Heritage.

Through these agreements and active involvement in the Development of the Draft Convention on the Conservation of Migratory Species of Wild Animals and the Draft Convention for the Conservation of Antarctic Marine Living Resources, Australia acknowledges its responsibility and desire to preserve the natural and cultural heritage for all mankind.

I see Australian National Parks as an important component of a global system which affords protection to migratory animals. Recently Australia has prohibited whaling in Australian waters and the establishment of marine parks within the South Pacific Region hopefully will assist in the restoration of whale stocks.

In the future we need to be looking more towards greater co-operation with our neighbours in park management and in the selection of national parks so that the parks of different countries form an integrated series. We need to explore the possibility of developing international parks. The identification of biosphere reserves under the aegis of the UNESCO Man and the Biosphere Program can be seen as a first move in this direction.

Governments, administrators and the general public all have a part to play in ensuring that we honour our responsibility to preserve a fabulously rich natural heritage for future generations.

This brings me to the point on which I wish to conclude - acknowledgement of the outstanding quality of the men and women at the various levels of national park management. It is they who play the significant direct role in achieving our goals.

There is a universality of extraordinary dedication and sincerity of purpose among national park directors and their staffs and in tribute to them I quote a passage from the writings of W.A. Foster.

He said, "Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skilful execution."

I hope your conference will be rewarding and successful.

(Discussion on the above paper appears at page 29 of Volume II of the proceedings).

KEYNOTE ADDRESS - THE HON. PATO KAKARYAMINISTER FOR ENVIRONMENT AND CONSERVATION, PAPUA NEW GUINEANATIONAL PARKS, RESERVES AND TRADITIONAL COMMUNITIESIntroduction:

We in Papua New Guinea, as we all know, have comparatively small population and vast areas of unused land - much of it is unusable even to that of our neighbouring island countries of the South Pacific. People are a part of the ecosystem in Melanesia and any worthwhile discussion on such environment matters must be related first to the people or peoples who will benefit from this. Of which I have strong feelings of.

Perhaps even more important than this may be when projected against a background of major world problems is problems that affect large sections of the world's population today.

I am not mistaken by quoting that by far the greatest of these is the mounting problems of hunger and famine. We cannot talk of environment in isolation. Every nation great and small, must face up to the critical problem of hunger and world food shortage. Of what use is it to talk of the environment to a man who has never in his life known what it is to have a full stomach? The world would have doubled its population by the turn of the Century. Within twenty years we may find we are forced to justify our right to sit on a scarce commodity like land.

We in Papua New Guinea might appear far away from these numerous large and looming problems that are causing anxieties and disturbances in the world scene today.

But in fact we are not. Our own environment concerns are themselves a real consideration. We have now entered the development game.

The game will be different from the others we have played. The stakes - our future survival and well being are higher. The penalties for not obeying the rules set by nature are there for us to see. We can look to other countries of the world, the so called developed countries - Japan for example, where several hundred people have died or been permanently crippled by eating mercury polluted fish or are suffocating from the exhaust fumes of their own cars.

We also have come to believe that, no approach that sets development and environment against each other will serve man's best interest for very long. The path forward must be one where ecological, cultural, social and economic aspects are integrated in the development of human environment making optimal use of existing and potential resources of the biosphere.

The interaction of Man and Environment is as ancient as the earliest human occupation, they say in Papua New Guinea it is at least 25,000 years ago.

While the issues discussed here are serious, they are not beyond solution. Papua New Guinea - the South Pacific countries have a chance to avoid the undesirable problems and plan our development for enjoyment and satisfaction of mankind.

Since the well known Stockholm Conference sponsored by the United Nations in 1972, the international community has increased its understanding of issues involved, a global environmental monitoring system, the law of the sea, population and food conferences and perhaps very soon, conferences on human settlements, water, trade and development.

We have generally taken our environment for granted. This makes the task that faces us as decision makers a difficult one, for what is generally taken for granted is not likely to be policy issue.

However this is changing, as we increasingly realise that there needs to be a deep and lasting commitment of our people to maintaining and improving and certainly protecting, our resources bases. This motion for example, is central to one of our national goals.

"The Natural Resources and the Environment of Papua New Guinea should be conserved and used to the collective benefit of the people and they should be replenished in the interest of future generations."

MELANESIAN CONCEPT - Is there a concept to suit Papua New Guinea:

They say;

Area of natural beauty (mountains, lakes, forests) set aside by the state for public enjoyment and where industrial development is forbidden.

To be more classical and to qualify for inclusion in the precious United Nations list of National Parks and equivalent reserves it requires the following characteristics; relatively large size; containing natural ecosystems not materially altered by human exploitation or occupation; protected and managed by the highest competent authority of the country; and open to visitors, under special conditions, for inspirational, educative cultural and recreative purposes, and lastly but not the least, all exploitations of the parks resources for commercial profit is forbidden.

If any of you thought the nice UN classification of National Parks and equivalent Reserves suited Papua New Guinea, then you are all mistaken due to the fact that we in Papua New Guinea have always tried in vain to establish even one park that would enable us to be qualified by even one UN list of Classifications of Parks and equivalent reserves, neither did the former as it did not include coral reefs and coastline besides mountains, forest, and lakes etc. etc.

To even further enlarge our problems in defining our concept of Parks what almost all our visiting experts from the West tell us is that, "Why worry about National Parks, island of Papua New Guinea is one large National Park".

I tend to agree with them in the sense that, why worry about Parks and equivalent reserves when the whole island is undergoing rapid political, social, economical changes. As it is difficult in any way such developing countries (which undergo rapid transition periods) to formalise anything concrete. The term national parks conjures up in the minds of most of you who have been associated with it in its Western context, a vision of tourist potential, outdoor recreation and visitor facilities in association with the conservation of the natural environment.

I do not intend to summarise list of international - National Parks and Reserves definitions, neither do I intend to define Papua New Guinea classification of National Park and Reserves.

However, it is my desire to outline to you the problems encountered by Papua New Guinea Government whilst trying to incorporate the easily established and recognised Western concepts of National Parks and equivalent reserves in the rapidly changing Papua New Guinea.

There is great diversity in all aspects. These involving Diversity in Traditional Communities; people speaking 700 or more

languages between landscapes from extreme of mountains supporting glaciers (and others that were formerly glaciated and now include cirque lakes and waterfalls characteristic of such region) to the other extreme of coral atolls, mangrove swamps, palm fringed white beaches and deeply indented and precipitous sides rear of fjords.

All of these environments as well as those in between fortunately support as distinctive and sometimes unique flora and fauna.

The latest review of the philosophy underlying the establishment in 1967 of the PNG National Parks is timely in view of the changes that have taken place in this country since then.

It is essential that any system of Parks and Reserves be conceived of as a viable entity within the structure of society. In Papua New Guinea it is possible to do this using concept of conservation unknown to many Western Societies, including customary land tenure and the present relatively balanced relations between people and land.

Traditional conservation practices, existed and still exist here and full consideration has been given to the people in our efforts to formalise the protection of our unique flora and fauna and their habitats.

Since cabinet approval of some parks (such as Mt. Wilhelm National Park in 1974), there has been reference for conditional alienation by leasing of land and for continuing involvement of customary owners in Park Management.

Many changes have taken place in the physical political environments of Papua New Guinea and many changes have taken place in the attitudes and philosophies of the people.

What is needed is a Papua New Guinean system of National Parks and Conservation areas not one imposed by Australia, the United States or even Europe, and a Papua New Guinea approach.

In the South Pacific there is no doubt that more national parks, or some things equivalent to them are badly needed. There is some question however about what kind of national park and how it is to fit in with the pattern of life, and the necessities of life, for those people who inhabit the Pacific.

I would suggest that the ideal national park for the Pacific Islands would be fairly close to what existed here before the invaders from Europe and Asia took over.

I do not propose, however, that we attempt to turn back the clock.

In Papua New Guinea these sentiments are much in keeping with the reasoning behind current approach to the establishment of parks and reserves. It is an aim that traditional life styles should continue to flourish with national parks where they already exist, for as long as the people concerned with it themselves.

The retention of traditional rights is obviously a prerequisite for such.

Negotiations are currently continuing for the establishment of our National Parks and Reserves.

In these cases no alienation of land is being sought nor is it desired. It is hoped that the concept can become a reality through a simple agreement with the customary owners.

Currently there are two ways in which land can be committed for the Park and reserve purpose.

Firstly, land that has been reserved under section 27 of the Lands Act may, by notice in the Gazette, be committed to the authorities responsible for Parks and Reserves, in this case the Papua New Guinea National Parks Board. Secondly, the Government may accept land as a gift devise or bequest. However, the authority responsible for Parks is also bound by Section 81 of the Lands Act, which forbids a native to sell, lease or dispose of native land otherwise than to natives in accordance with native customs.

Up to the present time the Government, before it can commit land, must own the land either by outright purchase or lease. Alternatively some person or body holding land on lease from the Government can bequeath or give such land to the National Parks Board conditionally or unconditionally.

Under the National Parks Act the purpose for which land can be committed to the care, control and management of the Board are for a place for the recreation or amusement of the public, a National Park, a monument, a botanic garden, a zoological garden, a reserve or sanctuary for the protection of flora and fauna or for any similar purpose.

To cover these various land uses the National Parks Board decided on the following designations National Park, Provincial Park Nature Reserve, Historic Site and National Walking Track.

The progress has been slow as most decision makers tend to view the whole country as being one big National Park whilst at the same time there lies the difficulty of establishing and training a new organisation in a field that previously had not been given consideration in the country.

Although in the (South Pacific) PNG National Parks and equivalent Reserves or something like it, is very much needed, the land tenure is the major setback.

Almost all the land (97%) is traditionally owned by the people, the government owns very little, or no land. The latter is the largest single factor hindering the establishment of world class system of National Park and Reserves, as they are conceived of by Western or more developed countries of the world.

Before 1974 all land committed to the National Parks Board care, control and management were Government owned areas that had been purchased outright from the customary owners - many years previously in the Colonial era.

However, since then the general trend has changed. The National Parks system does not require outright purchase of land from customary owners which has been and is generally the case.

The National Parks Board has other provisions, such as special leases. This gives opportunity for customary owners to fully understand and comment over the new concept should they feel the use applied to their land is irrelevant.

And at the same time it gives opportunity to the National Parks Board to prove to the land owners the relevance of conservation areas specially when these people of the rural sectors are a part of the environment directly and could see the effects of other land use operations around them.

The anticipated advantages of the lease system against outright purchase were that the customary owners retained the ownership of the land and that payment for use of the land would continue for the length of the lease and not be paid over the lump sum, which would probably not benefit the future generations at all.

In addition there were no conditions inserted into the lease to the effect that the area would be for national parks purposes only and that, should the Government at some stage decide that it no longer required the land for this purpose, then the lease would be nullified and all rights revert to the customary owners. This would prevent any back door entry into major exploitative activity without the people's consent. Moreover, there would be a regular review of the rental paid so that the return to the people would keep pace with inflation.

Furthermore, we all know very well that with penetration of western style of living, the urban drift, replacement of subsistent activities by direct monetary skills, people's dependences and value on land would cease gradually with time.

Currently all negotiation for customary land for National Parks or Reserves are conducted on the lease hold basis. Outright purchase is not considered unless particularly requested by the owners.

During negotiation any rights to the land customary owners wish to retain in the event of a lease being agreed to are discussed.

In some reserves the customary owners are prepared to give up all customary rights to certain pieces of land given to the Government for National Parks and equivalent Reserves.

This is not a matter for concern as there is no good reason why traditional practices should not continue with National Parks and Reserves in Papua New Guinea.

There may, of course, be occupations where some practices are incompatible with the purpose of a reserve on a conservation area, but in general terms, traditional subsistence hunting, gathering and even gardening practices would be compatible in most cases.

Dr. Ray Dassmann, Senior Ecologist with IUCN in his recent paper, had the following to say to this.

"Few anywhere would argue with the concept of National Parks, but many would argue with the way the concept has been applied too often at the cost of displacement of traditional cultures, and nearly always with insufficient consideration for the practices and policies affecting the land outside the park."

In cases of some parks and reserves in Papua New Guinea the customary owners, through their local leaders with the technical assistance from the Government (National Parks Board), are willing to manage and develop such parks on their own land.

Such parks will be their park on their land and management and planning advice will be available to them as and when they require it.

The current approaches to the establishment of national parks and conservation areas can therefore be summarised briefly; avoidance of total alienation of land by outright purchase and preference of conditional alienation by leasing of the land; continuing involvement, by training opportunities and by the need for continuing advice and information on cultural matters associated with the land concerned; concern that the customary owners receive any financial benefits that may eventuate through the establishment of a park (through the provision of necessary services, etc.).

What then of the future? While no expert in the use of a crystal ball, I am in no doubt that further modification and adaptation will take place in the approach to the establishment of a system of national parks and reserves in Papua New Guinea.



National Parks can and will play a very large role in the development and control of Tourist Industry in Papua New Guinea. The development of such parks will cost money, government money. It is hard to justify the expenditure of public money on a project that could be nullified by a sudden change of mind and therefore some form of tenure for all conservation areas, by whatever name, where major expenditure on the development of visitor facilities and the associated infra-structure is not envisaged, there seems no justification for alienation of the land.

Already, customary owners of land are showing concern in some areas, for the conservation of their forest. They wish their forest to be protected but do not want their land alienated to the Government in any way.

Similarly, there already exist within traditional society in Papua New Guinea the mechanism whereby land is used for specific purposes by a person or persons other than the owner. Is it not possible that an extension of this traditional tenant system might provide one possible method for the establishment of conservation area?

During recent times the world wide concern for environment and the conservation of natural resources has mushroomed. Today conservation problems are no longer only national but regional and probably universal as well. There are now proposals for, world parks, international parks, and collective action is being urged by world authorities on such matters (United Nations Organisation) and related bodies in order that the world heritage of natural and cultural resources may be conserved.

Inevitably there will be pressure on Papua New Guinea to play its role in the conservation of respective samples of ecosystem found throughout the region.

Just as the original national parks concept has been adapted to suit the conditions that existed in many countries that have adopted the concept so must it be adapted to suit Papua New Guinea and the South Pacific.

What we really want and are indeed aiming to achieve is a Papua New Guinea system of national parks and reserves that can become available entirely within the structure of this society or for this matter the South Pacific.

Papua New Guinea is becoming more and more developed. Whilst at the same time the people who have been a part of the (ecosystem) environment are becoming fully aware of their changing environment and what it is to be without it.

In this light we have tentatively defined a number of environmental principles from which we will work.

These are, if I may mention some of them:-

1. All our people have the right to a safe healthy, productive and culturally satisfying environment which permits a life of dignity and well being.
2. We are the trustees of the environment for future generations and our approach to development must reflect this.
3. Pollution of land, air and water in quantities which cause the degradation of the environment must be controlled.
4. Habitat and Wildlife management must receive consideration in planning our development.
5. Protection and enhancement of the environment requires education directed toward living with our environment etc. etc.

Central to this environmental principle is the theme that prevention is better than cure. Any development project that does not take into account the effects on the local environment inevitably results in future, unforeseen social and economic costs.

The world is in the mad rush for development. In doing so they have destroyed what was then country. So many slow growing hard wood species have been replaced by fast growing soft wood species from overseas, so much exotic species drowning the once natural forest.

1. Over centuries European man has altered, created much of his landscape. With present technology they find that they have nowhere to use the technology because they have used up all their natural resources and the solution they turn to is quite obvious, the third worlds.

Nobody for monetary terms respects one's own strict tribal laws, nor does he anything to promote its existence.

Until recently, the works of man in the Papua New Guinea environment were mainly limited to traditional uses.

Although in this country where there is increasing recognition, that parks are a source of great value to the country and which deserves attention from the start in practical terms, in the development process, it is just like anywhere else and that nature conservation programmes are afforded very low, if any, priority.

2. One of the major tasks of our present education systems today is to recreate awareness of our responsibility to our common property, air, land, water and the other natural resources - and our cultural heritage.

I guess in such countries a point worth remembering is that, it is not educating and making the people aware of their environment the important issue, the most important issue involves the education of the decision makers in making the right choices, on the right moment in the process of progress.

Because the resource which we all have is what has given us the capacity to survive and to live, and must give us the potential to develop, that, and our communities, together with the magnificent variety of our cultural heritage and its natural background, is the true wealth of Papua New Guinea and the South Pacific. But we must be careful neither to forfeit this wealth for the short term economic gains nor to ignore that such gains might be made at the expense of our people and their expectations.

Nevertheless, we must have economic growth and we all know it is at this point that injury to the environment can take place.

The question is not whether we should not have economic growth, we must. Nor is the question whether the impact on the environment must be rejected. It has to be. The solution to the dilemma clearly revolves not about whether but about how we are to manage our development.

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(Discussion on the above paper appears at page 36 of Volume II of the proceedings)

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"THE IMPORTANCE OF ISLANDS AS RESERVES"

Introduction: Distinctive features of Island ecosystems

Island ecosystems differ markedly from those of mainland or continental areas as a result of several geographical and environmental influences.

1. Oceanic Influence

Island biota normally reflects the dominating influence of a maritime climate, marked especially by limited diurnal and seasonal ranges in temperature, and extreme windiness. Consequently, island ecosystems may differ significantly from those of continental areas in the same latitudes.

2. Isolation

The geographic separation of islands from mainland coasts means they are often beyond the natural dispersal range of many terrestrial plants and animals. Similarly, many islands have not experienced the effects of human dispersal either and their native flora and fauna is retained in an essentially unmodified state.

3. Small Size

Islands provide only limited space and resources for the development and growth of terrestrial organisms. Moreover, their proportionately long coastlines compared to their land area often produces an over-representation of shore and marine organisms in the total flora and fauna in contrast to continents.

4. Comparatively Impoverished Ecosystems

Because of the effects of isolation and the limits on available area, native terrestrial flora and fauna is often impoverished in its overall variety. Some habitats exist only on larger islands, so permanent colonisation by some species is prevented. Larger herbivores and carnivores are often absent from islands because they require a low population density for long-term survival. However, the absence of some species in the ecosystem may decrease predation and competition pressures and allow unspecialised species to become dominant.

5. High Degree of Endemism

Many islands support populations of plants and animals found nowhere else in the world. These endemics result from two processes:

- ( i ) The harbouring of relict populations of species that have become extinct elsewhere due to natural or man-made environmental changes.
- (ii) The development, from immigrant or original genetic stock, of new forms adapted to island conditions.

## The Value of Islands as Reserves

Many of the elements which give islands their distinctive character are also those underlying the intrinsic value of islands as reserves.

### 1. Isolation

Because of their isolation from human influences islands often contain intact and unmodified natural ecosystems. They may also be isolated from introduced species of plant and animal pests and are, therefore, important refuges for threatened mainland species of nature biota.

### 2. Uniqueness of Biological and Physical Features

The presence of endemic and relict species on many islands means that there will often be unique elements in the flora and fauna.

### 3. Fragility

Island ecosystems are often fragile and thus very sensitive to change. Human impact might therefore, have far more serious and wide-ranging effects on islands than on the mainland. For example, plants on islands are usually poorly adapted to continuous grazing by introduced large herbivores such as goats or sheep. The introduction of predators may also have spectacularly disastrous results because island animals are often ill-equipped to cope with predation.

### 4. The Important Role of Islands in Oceanic Ecosystems

No one island is a closed ecological system, rather it is an integral component of a much larger system encompassing the surrounding ocean. Thus, islands frequently support enormous populations of marine birds and mammals which feed at sea but come ashore to breed. The island is, therefore, a vital part of their habitat. Thus, island reserves perform an important global function in the protection of oceanic ecosystems.

### 5. Human Appreciation and Recreation

As places to "get away from it all" islands offer a unique recreational opportunity for human society. Indeed, for many mainland dwellers, islands have special, often utopian, qualities.

While there are many opportunities for recreation on islands there are also constraints, not only environmentally but also in human terms. Where islands have a resident human population, visitor recreational values must be weighed against other social values. Resident islanders tend to have a well-developed sense of attachment to their island, and to differentiate strongly between "locals" and "outsiders". Tourist and local stereotypes may be utterly opposed. For tourists, an island is a picturesque and restful place. Many islanders, however, contrast the freedom and affluence of outsiders to their own relative poverty, and thus resist tourist development. Severe value conflicts may be generated in this way.

### 6. Islands as Natural Laboratories for Research

Protected natural areas are ideal laboratories for studying the operation of naturally-occurring processes. They are also useful as reference points or controls against which to measure environmental change in unprotected man-modified areas.

Islands as Natural Laboratories for Research (contd)

Islands have comparatively discrete boundaries and simplified biological relationships so inputs and outputs of energy and matter are often more easily identifiable on islands than in continental situations.

Scientific comparisons are made easy where a pair or a group of islands differ from one another in only one or two major factors. Similar comparisons can be made between islands and adjacent mainland areas. Indeed, an understanding of island ecosystems may greatly assist mainland reserve management. Many mainland reserves are in essence "islands" of natural vegetation in a "sea" of cultural landscape, and similar biological principles and controls may obtain for both oceanic and "terrestrial" islands.

Of course, the presence of rare, endangered, or endemic species and relict populations or habitats on islands imparts to many islands an intrinsic scientific value. Sir Charles Fleming, one of New Zealand's foremost natural scientists, has revealed how valuable endemism is in elucidating the geological history of a region, for example.

Islands, then, are very special environments with much to offer as reserves for the protection and study of our natural heritage and for recreation. It is not surprising, therefore, that islands constitute an important element in the global network of protected areas. A discussion of New Zealand's island reserves serves as a useful illustration of some of the opportunities and constraints in the management of islands as reserves.

The Places of Islands in the New Zealand Environment

New Zealand is an island realm. From a casual glance at a map of the South Pacific the country appears simply as two main islands within the temperate latitudes. However, closer inspection reveals a multitude of smaller islands and islets, ranging over a broad expanse of ocean from the subtropics to the subantarctic.

These islands may be conveniently grouped as follows:

- (i) The Kermadec Islands - a volcanic group of four main islands, dominated by Raoul I, with a warm, humid subtropical climate.
- (ii) Northern offshore Islands - extending from North Cape to the Bay of Plenty, comprising mainly ancient or recent volcanoes which, except for the Three Kings Islands, were all connected to the main North Island during the Pleistocene Ice Ages.
- (iii) The Cook Strait Islands - concentrated mainly in the Marlborough Sounds and also land-tied during the Pleistocene.
- (iv) Southern Offshore Islands - mainly outliers of Stewart Island, New Zealand's third "main" island.
- (v) The Chatham Islands Group - 900 km east of the South Island, of which the 191,000 ha Chatham Island is the largest.
- (vi) The Sub-antarctic Islands - consisting of five groups, ranging in size from the Auckland Island which, in the words of one of our most eminent naturalists Sir Robert Falla, is a "vast chunk of land", to the Bounty Islands which are a mere cluster of weather-beaten rocks protruding from the ocean and totalling only about 135 ha in area.

These islands differ markedly in terms of their isolation from the "mainland" and in their size, climate characteristics, geological make-up, biota and scenery. They are, however, an integral component of the New Zealand environment and represent a unique and extremely valuable natural resource.

#### Island Reserves

In recognition of their national and international importance for nature conservation and recreation, more than one hundred of these islands have been set apart as various kinds of reserves.

Indeed, virtually all classes of reserves in New Zealand are represented on islands. Thus, the sub-antarctic islands and several offshore islands, such as Motunau and Kapiti Islands, are Nature Reserves established to ensure their strict preservation, in perpetuity, in an unmodified state. Others such as Kawau Island, of which 173 ha is recreation reserve, in the Hauraki Gulf, combine nature protection and recreation uses; while others such as Motuora and Rangitoto Islands are recreation reserves. Stephens and the Trio Islands in the Marlborough Sounds are examples of island wildlife refuges managed under the Wildlife Act 1953 and the protection of unique animal populations.

An extremely useful administrative strategy for co-ordinating the management of a related group of offshore island reserves and adjacent mainland reserves is the Maritime Park concept. New Zealand now have three such parks - Hauraki Gulf Maritime Park, created under the Hauraki Gulf Maritime Park Act 1967, the Marlborough Sounds and Bay of Islands Maritime Parks, established in 1972 and 1978 respectively under the Reserves Act 1977.

Maritime parks are established to provide for proper public use and enjoyment of reserves - especially for water-based recreation - consistent with the preservation of native flora and fauna and natural landscapes.

Hauraki Gulf Maritime Park comprises more than fifty island and two mainland reserves with a total area of 9,500 ha. The outer, less accessible, and biologically important islands are managed as nature reserves with restricted public entry. Their flora and fauna include many species of plants and animals now rare or extinct on the mainland. They hold the only world populations of the stitchbird and the North Island saddleback, for example, and are the only breeding grounds for Pycroft's petrel and Buller's shearwater. Little Barrier Island is the main breeding place of the rare Cook's petrel. These islands also include most of the remaining sites where the archaic tuatara still survives.

The inner islands provide exceptional recreational opportunities, especially for Aucklanders. Motutapu Island Recreation Reserve, and its neighbour Rangitoto Island are visited by more than 15,000 day-trippers annually. On Motutapu Island a farm is open to the public by means of a public walkway. Rangitoto is modified to some degree by the spread of exotic plants and by possums, wallabies, deer, rats and cats, but its vegetation is the finest example in New Zealand of a forest growing on a volcanic lava flow. This vegetation is hardy enough to withstand some human use without damage, so the island is of high scientific educational and recreational value.

Historic sites and reserves add to the diversity of the Maritime park and enhance its recreational value. Kawau Island has Mansion House, a grand old house of much historic interest to New Zealanders as the home of our first Governor, Sir George Grey. One of the mainland areas is the North Head Historic Reserve, a long-time fort guarding the entrance to Auckland Harbour, where the public may enjoy guided tours of tunnels and gun emplacements which date from 1885.

Legislative and Administrative Framework for Island Reserves

In New Zealand island reserves have the same statutory and administrative provisions as mainland terrestrial reserves.

The principal statute governing protected areas in New Zealand is the Reserves Act 1977, which provides powers necessary to reserve islands for nature conservation and recreation purposes.

Section 3 of the Act sets out its general purpose as, inter alia,

- "(a) Providing, for the preservation and management for the benefit and enjoyment of the public, areas of New Zealand possessing
- (i) Recreational use or potential ... or
  - (ii) Wildlife; or
  - (iii) Indigenous flora or fauna; or
  - (iv) Environmental and landscape amenity or interest; or
  - (v) Natural, scenic, historic, cultural, archaeological, biological, geological, scientific, educational, community, or other special features or value.
- (b) Ensuring, as far as possible, the survival of all indigenous species of flora and fauna, both rare and commonplace, in their natural communities and habitats and the preservation of representative samples of all classes of natural ecosystems and landscape which in the aggregate originally gave New Zealand its own recognizable character."

Sections 16 to 23 of the Act provide for the Minister of Lands to classify reserves, and set out the various classifications to be used.

Recreation Reserves are established for recreation and sporting activities, for the physical welfare and enjoyment of society, and for the protection of the natural environment and beauty of the countryside. Members of the public have freedom of entry.

Historic Reserves protect and preserve in perpetuity places, objects and natural features of historic, archaeological, cultural and educational interest.

Scenic Reserves are essentially managed as miniature national parks, and have as their principal objective the preservation of natural ecosystems. Unrestricted public entry is normally available, but recreation must be compatible with the principal purpose of the reserve.

Nature Reserves are established for the absolute protection and preservation, in perpetuity, of indigenous flora and fauna or natural features that are of such rarity, scientific interest or importance, or so unique that their protection is in the public interest. Public entry to nature reserves is strictly regulated by permit.

Scientific Reserves have the purpose of protecting and preserving, for scientific study, research and education, biological and physical features of special importance or interest. An important provision for scientific reserves is that which enables, under Ministerial consent, manipulation of the reserve for experimental purposes or to gain further scientific knowledge. Restrictions on public entry may be imposed over all or part of a scientific reserve. At this time there are no island scientific reserves in New Zealand.

The Reserves Act 1977 also provides for the establishment of Government Purpose and Local Purpose Reserves over, for example, defence, transport, communication and lighthouse facilities, but these are not a significant part of the island reserve network.

Section 13 of the Act enables the Minister to declare any reserve to be a New Zealand Reserve if, in his opinion, it protects values of national or international significance. Moreover, the Governor-General may declare any New Zealand reserve or part of a New Zealand reserve to be an area meriting special protection. This means the reserve or its classification cannot then be changed except by Act of Parliament. It is anticipated that the outlying island nature reserves of New Zealand will be protected in this manner.

Island reserves are variously administered by the Department of Lands and Survey, Local Authorities, and Statutory Boards. The Maritime Parks, for example, are under the authority of Boards comprising representatives from Government departments, Local Government as well as private individuals who have an appropriate involvement in or interest in park management. These boards are chaired by the Commissioner of Crown Lands for the district in which the park is principally located, and the Department of Lands and Survey provides also clerical and professional services for the Board. In addition members of the scientific community with special qualifications or experience to assist park management may be appointed to a scientific advisory committee.

In the case of outlying islands management there is an advisory committee which draws together people who, in both a governmental and private capacity, can make an effective contribution to island management and a co-ordinating point for scientific activity. Thus, there is representation from the Ministry of Defence which often provides logistical and surveillance services to island reserves, and the Wildlife Service and the Forest Service who have responsibility for wildlife management and wild animal control, respectively, are also represented.

Under the guidance of this committee the Department of Lands and Survey has in recent years organised expeditions for scientific research, and to undertake management control or introduced plants and animals, in the Kermadecs, Auckland, Campbell, the Antipodes and the Bounty Islands.

There is then, in New Zealand a strong and elaborate legislative and institutional basis for preserving natural features and providing for public recreation in island reserves.

#### Management Planning of Reserves

Perhaps the most significant recent development in the Stewardship of reserves in New Zealand has been the evolution of an elaborate management planning programme. In fact, the Reserves Act 1977 now makes it a mandatory requirement for administering authorities to prepare and implement management plans.

As evolved in the New Zealand reserves system, management planning is a process whereby administrative policies are translated into management action. Thus, management objectives are defined in the legislation, interpreted in policies, and implemented through management decisions - the whole being a problem-solving process which ensures that decision making is compatible with the long-term purposes and interests of a particular reserve.

The management plans recently drafted for the Antipodes and Bounty Islands Nature Reserves elaborate the management policies and implementation principles for such matters as administration; public access; scientific research; quarantine precautions; management of native flora and fauna; precautions against the harmful effects of exotic plants and animals; restrictions on the development of facilities and on economic exploitation; interpretation and educational uses; and the provision of marine buffer zones surrounding the islands. Some of these aspects are further elaborated below.



Some Opportunities and Constraints in the Management of Island Reserves

Simply declaring an island as a reserve does not ensure the survival of its biota. Indeed, as noted above, islands are often highly vulnerable to damage or destruction from human impact. Moreover, this impact may be direct or indirect, and either purposeful or accidental.

While in some instances the ultimate objective of management may be to retain a pristine ecosystem, in other cases there is a requirement to restore natural conditions from a man-modified state. In still other cases it may be desirable to retain, but control, changes already set in train by man. All these opportunities are available in New Zealand island reserves.

Examples of pristine, or little-modified island environments are Meyer Island (Kermadec), Middle and Green Island (Mercury Group), Snares Island, and Adams Island (Auckland Group).

Such islands are of extreme value biologically because they illustrate what all islands have been in the past, and what they could become. They are museum pieces of our natural heritage, and thus have not only national, but also international significance. It is of utmost importance that they be guarded against the effects of man and his associated animals as the results could be biologically explosive and catastrophic, and possibly irreversible.

An illustration of such impacts is provided by the case of rodent introductions to islands, many of which are rodent-free. Once established, rats and mice cannot be entirely removed from islands using present control methods. Four rodent species are established in New Zealand; the ship rat, Norway rat, kiore (Polynesian rat) and the house mouse. They get ashore in stores, along vessel mooring lines, and even by swimming short distances.

Norway rats have their greatest effect on ground-feeding birds, and especially take the eggs and young of surface-nesting or burrow-nesting seabirds. Ship rats have a greater impact on tree-nesting birds, especially small forest passerines. Kiore affect both ground- and tree-nesting birds. Rats may even affect other vertebrates by direct predation, or through competition for food or nesting sites.

The invasion of the Big South Cape Islands by ship rat was probably the most biologically costly event to have affected any island fauna in New Zealand this century. The rats apparently gained access from boats moored to the island by stern lines in 1963, and the population erupted soon after. The impact on the birdlife was immediate, resulting in three extinctions - South Island saddleback, Stead's bush wren, and Stewart Island snipe; two disappearances - robin and fernbird; and several reductions followed by recoveries of populations - bellbirds and parakeets. The short-tailed bat also disappeared and wekas all but vanished. The rats also affected the vegetation, stripping bark and killing *Pseudopanax*. There was a marked increase in introduced birds, blackbird, chaffinch and hedgesparrow - accompanying the decline of native birds.

The natural processes of population dynamics and control by warfarin poisoning have resulted in stabilisation of the rat population, but the island ecosystem has already been fundamentally transformed.

Island reserve management planning now recognises that prevention of introductions is the only effective method of rodent control and lays down guidelines for this, including banning of wharf and jetty structures; the requirement for rodent clearance certificates for all vessels visiting islands; the proper sealing and inspection of stores off-loaded onto islands; and the establishment of rat poison bait stations on vessels. Surveillance and prevention of the introduction of harmful animal pests remains perhaps the greatest problem in the management of pristine island reserves.

There are many examples of island reserves where management aims at rehabilitation of the natural environment following changes wrought by man and his attendant animals. On Cuvier Island in the Hauraki Gulf Maritime Park there has been a rapid regeneration of the vegetation following extermination of both rats and cats. The North Island saddleback has since been relocated here. Scientific investigations have monitored the changes in vegetation since the removal of goats from Great Island (Three Kings Group). On Raoul Island (Kermadecs), a major goat control operation is in progress. Here goats have devastated the vegetation and especially the endemic kermadecs pohutukawa, the kermadecs ngaio, and the endemic *Coprosma acutifolia*; as well as large endemic tree ferns, the endemic taupata, the endemic nikau palm; the wharangi; and the karaka.

The vegetation balance here is further upset because two main understorey trees, *Myrsine Kermadecensis* and *Ascarina Lucida* var *lanceolata* are unpalatable to goats and could become forest dominants if pohutukawa regeneration should fail.

Goats have opened up the forest floor by browsing and trampling and have induced erosion. More seriously, the disturbance may have encouraged the spread of aggressive exotic weeds - the aroid lily and the mysore thorn, in particular.

Forest Service culling has reduced the goat population on Raoul to about 500, that is half the original number, and this has resulted in a dramatic improvement in forest health. Extermination of the goats, however, will be a long and costly process, but a vital one, if this nature reserve is to be restored to its natural state.

While extermination of introduced animals is the objective on Raoul Island, there are other situations where either particular species of introduced animals or combinations of them have created a scientifically interesting and biologically stable environment which appears worth retaining, at least in the short-term.

An example of this is provided by Enderby Island in the Auckland Islands Group. The 688 ha Enderby Island has a history of the liberation of animals and some attempts at farming, beginning with the introduction of rabbits by the British Expedition of Sir James Clark Ross in 1840. Pigs, sheep and cattle were introduced by whalers before 1850, and goats were first landed in 1866. At this time also, the vegetation was fired to allow the spread of introduced English grasses. The pastoral licence over Enderby Island expired in 1932 and the island became a reserve two years later.

The native vegetation was substantially modified by firing and grazing. Pigs ate out the large-leaved herbaceous endemics, rata forest was destroyed over broad area, and native *Poa litorosa* tussocks were virtually eliminated. Grazing by cattle and rabbits prevented regeneration such that the original cover was replaced by a short grassy sward. Coastal sand dunes, mobilized by the vegetation destruction, migrated inland and invaded the forest zone.

Introduced mammals must also have made the island unfavourable for the breeding of vulnerable bird species. The snipe became rare soon after the introduction of pigs, and the disappearance of the South Georgian diving petrel was probably linked to habitat destruction, as they nested in the sandy soils distributed by cattle trampling and rabbit burrowing. Breeding populations of storm petrels were similarly affected. Exploitation by castaways and sealers must have completely exterminated the Southern Royal Albatrosses, and within twenty years of their discoveries, the fur seals were annihilated.

Today, of the introduced animals, only mice, rabbits and cattle remain. The rabbit population is declining or steady at around 3,000 to 4,000. The rabbit species is a distinctive one derived from a French breed and possessing striking colour forms unlike those on the mainland of New Zealand. Cattle numbered less than 40 by the early 1970's.

Together, the rabbits and cattle maintain the grass sward, and the plant cover appears to have remained essentially unchanged for the past 25 years.

Unmolested by man, the Southern Royal Albatrosses are recolonising, and had increased to 17 pairs by 1973. Snipe are now frequently reported from Enderby Island. The seal and sea lion populations are also recovering, with more than 1,000 of the latter coming ashore at the island's Sandy Bay during the breeding season. Some scrub is recolonising and replacing the grass sward in local areas.

The continued existence of introduced animals on Enderby Island presents something of a philosophical dilemma for reserve management. Strictly speaking, they should be removed to allow an immediate revegetation. But the environment appears to have reached a new stable equilibrium. None of the real biological values are now endangered by the continued presence of introduced mammals, and they, themselves, have some historic and scientific interest. Their continued presence presents a unique opportunity for studying the effects of man on native island flora and fauna. It is a natural experiment worth exploiting, although the situation must be kept under surveillance to ensure that there is no further deterioration.

One other important opportunity for biological conservation and experimentation is uniquely provided for on islands - the use of islands as refugia for rare and endangered species which may be translocated from threatened sites.

There are several examples of this on New Zealand islands, including translocation of stitchbird and North Island saddleback among islands in Hauraki Gulf Maritime Park; the transfer of kakapo, the endangered New Zealand flightless parrot, to Maud Island in Marlborough Sounds Maritime Park; and the transfer of the extremely rare Chatham Islands black robin from Little Mangere to Mangere Island. This transfer of robins was accompanied by a massive effort at establishing suitable habitat conditions on Mangere Island, which included the planting of more than 80,000 cuttings of *Olearia traversii* - the majority of which were taken by Wildlife Service officers and volunteers from hedges in private gardens in the city of Dunedin. Air Force planes were used to transfer the seedlings to the island. The apparently successful translocation of these robins has given the species a new lease of life and is a tribute to the foresight and efforts of those who saw the opportunity the island offered as a biological refuge.

#### SUMMARY

Islands are very special environments with much to offer as reserves for the protection and study of natural ecosystems and for recreation. New Zealand is an island realm comprising three main islands and a multitude of smaller islands and islets distributed from the subtropics to the subantarctic. More than one hundred of these have been set apart as various kinds of reserves.

An extremely useful administrative strategy for co-ordinating the management of a related group of offshore island reserves is the Maritime Park concept. Maritime Parks comprise many island reserves of various categories, all administered and controlled by the one authority.

Other island reserves have essentially the same statutory and administrative provisions as mainland reserves. The Reserves Act 1977 theoretically provides the powers necessary to reserve islands for conservation and recreation purposes. Recently it has become mandatory for all administering authorities to prepare and implement management plans for all reserves. This process demands a re-evaluation of management policy

and an encouragement to translate policy into action. It recognises that by simply declaring an area a reserve, the preservation of its biota is not necessarily ensured. Active and effective management programmes are required. In some instances, the ultimate objective of management may be to retain a pristine, in other cases there is a requirement to restore natural conditions from a man-modified state. In still other cases it may be desirable to retain, but control, changes already set in train by man. All these opportunities must be considered, and appropriate management strategies developed.

(Discussion on the above paper appears at page 61 of Volume II of the proceedings).

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THE COASTAL ECOSYSTEM - MAN'S IMPACT

INTRODUCTION

It is self-evident that to a nation of islands such as Fiji, the interface between land and sea is an important one. As land-use patterns on this interface change, however, to more alien and intense usage, the long-term effects of man's activities may often not be in the best interest of man himself.

In this paper, I shall first describe types of coastal ecosystems found in Fiji, some of which are similar to those found in other South Pacific countries. Then, some examples of the impact of utilization of resources on these ecosystems are drawn. Finally, present and future policies of Government on these utilization and impacts are discussed.

I. TYPES OF COASTAL ECOSYSTEMS

A. Fringing Reefs, Barrier Reefs, Lagoons with Patch Reefs, Sandy or Muddy Shores.

The coastline and the coastal waters of the Fiji Islands are characterized by the presence of fringing reefs, barrier reefs, lagoons with patch reefs, and sandy or muddy shores.

The longest chain of fringing reefs occurs in the south coast of Viti Levu. Thus, the appellation "Coral Coast". The continuity of the reef is interrupted by deep channels or "passages", particularly at points of freshwater influx. A transect from the beach towards the outer sea yields the following zones: the landward platforms, the moat with micro-atolls, coral platforms, the summit moat, the summit seaward slope and, finally, the surge zone.

The greatest diversity of flora and fauna exists in the summit and seaward slope zone. The moat and edges of the dead coral platform contain a rich assemblage of corals and coral reef organisms.

A continuous algal zone, mainly of Turbinaria turbinata, exists in the summit zone.

In comparison to the fringing reef, the barrier reef is separated from the coastal beach by the lagoon of varying depths. For example, the reef opposite Suva City in South-eastern Viti Levu forms a crescent protecting the Suva Harbour to the south-west and skirts the tip of Suva Peninsula before swinging eastward away from the land at Laucala Bay. Like the fringing reef, the barrier reef, which is usually exposed at low spring tides, is also zoned. A transect from the open oceanic edge towards land yields the following zones: the wave-break zone, the seaward slope, the summit zone, "the dead reef", the rubble flat, and the sand-bottomed lagoon.

The wave-break zone and the seaward slope and summit zones have the most complex and diverse reef communities. These are dominated by coral, soft coral, and algal species. A closer examination of the "dead reef" zone actually reveals a rich and complex cryptic community consisting of burrowing barnacles, mussels, sipunculids, polychaetes, and vermetid gastropods. The rubble flat is a wide

TYPES OF COASTAL ECOSYSTEMS (Contd)

zone, in some places half a kilometre across, of unconsolidated pieces of dead coral with intermittent patches of coarse sand and limestone boulders. Conspicuous organisms in the open surface include starfish, sea-cucumbers, sea urchins, giant clams, and some corals and soft corals.

The sand-bottomed lagoon edge is scattered with coral heads and soft corals, apart from intervening white sand. Where the sand becomes dominant, the bottom is covered in grass-beds of Syringodium isoetifolium and Halophila ovalis.

Two types of sandy coastal beaches are encountered in Fiji: the high-banked white beaches, especially characteristic of small islands and sand cays, as well as some stretches of larger islands; and the light-grey sand beaches made up of more finely sorted sands, with a component of volcanic origin, found in some places along the south-west coast of Viti Levu. These are high energy beaches with a rich and characteristic maritime vegetation which grows above and behind the upper tidal zone.

The intertidal areas support distinctive interstitial fauna. On protected shores are the mud flats, some with the sea grasses Halodule pinnifolia and Halophila ovalis, backed by mangroves towards land. The mud flats support numerous species of edible bivalves, sipunculids, holothuria and custacea.

#### B. Mangrove Forests and Associated Salt Pans

Mangrove forests are typical of the quiet, silt-rich, intertidal shorelines of the tropics. In Fiji, where these are extensive on the high islands, a conservative estimate gives their acreage as 19,684 hectares or 1.1% of the total land area. The main tree species in Fiji are: Bruguiera gymnorhiza, Rhizophora mangle, Rhizophora stylosa, Lumnitzera littorea and Zylocarpus granatum. Rhizophora Selala, which is the hybrid between Rhizophora stylosa and Rhizophora mangle has been established as a new taxon and is unique to Fiji.

The salt pans are the more landward landforms behind the mangrove forests characterised by absence of mangrove trees and by the occasional patches of the grass, Paspalum distichum. The popular term "salt pan" is attributable to the high salt concentration in the soil which is often seen as salt crusts on the surface.

#### C. Beach Forests

There is very little left of the beach forests on the islands due to the encroaching human settlements. Typically, these forests are found landwards of the mangrove forests and are made up of varied tree species of the genera Heritiera, Inocarpus, Dillenia and others.

#### D. The Sigatoka Sand Dunes

The Sigatoka sand dunes, a unique coastal ecosystem in Fiji, are found in the south coast of Viti Levu near the mouth of the Sigatoka River. The dune sands have been blown by the prevailing winds into low hills up to 58 metres above sea level separated by south-easterly trending valleys.

Seven vegetation types have been distinguished on the sand dunes.

- 1) The closed forest and closed scrub are a somewhat depauperate beach forest, much of which has been disturbed by grazing, fire and cutting. These human activities have opened up the tree canopy and allowed a profuse growth of alien species, particularly grasses, on the floor of the forest.

TYPES OF COASTAL ECOSYSTEMS (Contd)

- 2) Woodland and forest/scrub grassland mosaics, areas in which the closed forest tree stratum has been reduced in density.
- 3) Casuarina equisetifolia open forest, characterised by this tree species which is common in Western Viti Levu but more dominant in high salt spray areas near the coast.
- 4) Pandanus odoratissimus low open woodland, made up of open stands of screw pine.
- 5) Open grassland, which is like the aforementioned but without screw pine.
- 6) Open hermland. A deliberate attempt to reclaim from sand two of the "wind-tunnels" formed by parabolic dunes has been successful, but has left partly bare areas, between the line of open forest and open scrub, that are covered by a mixture of prostrate grasses, weedy herbs, and small shrubs.
- 7) Coastal strand vegetation, of typical species such as Spirifex hirsutus and Ipomaea brasiliensis.

II. EXAMPLES OF MAN'S IMPINGEMENT ON THE COASTAL ECOSYSTEMA. Mining

- 1) Mining of coral sand.  
Coral sand is an essential raw material for cement production in Fiji. Coral sand from the seagrass beds of Laucala Bay lagoon near Suva is being dredged by a bucket dredge at the rate of 2,000 tons per week. This activity destroys, at least temporarily, the seagrass habitat which supports a community on its own and contributes not only to the primary production of the coastal waters but also direct food for herbivorous fishes such as Siganids and Hemirhamphids. The seagrass beds are also important feeding grounds for Lethrinids and Lutjanids while providing rich habitats for several Holothuroids, including the valuable Beche-de-mer species, Microthele nobilis.

Mining of coral sands also stirs up fine sediment which is inimical to corals and soft corals. Increasing turbidity reduces primary productivity.

In order to minimise the harmful effects of mining coral sand in the lagoon, the government leases only small areas for specific periods, thus enabling removal of only a part of the sand in the leased area. By allowing short periods of sand-mining in small areas only, natural rehabilitation of the mined site is encouraged.

- 2) Mining of sand dunes.  
The presence of closed forest and closed scrub in all topographic positions, including dune peaks where moisture could be expected to be most limiting, suggests that the major environmental factors determining the vegetation of the area are wind, salt spray, and man. The greatest loss of the closed communities has been where human activity has been greatest. Thus, the eastern part of the dunes has lost more of the closed forest than the western

EXAMPLES OF MAN'S IMPINGEMENT ON THE COASTAL ECOSYSTEM (Contd)

section. In the latter, the sea is present on two sides, whereas in the former there is intensely farmed land with the associated grazing, cutting, and burning.

The species found in the closed forest are not rare. However, this forest, the most diverse and with the highest biomass, is unique in that it is found on sand dunes of steep to very steep (30°) slopes - a combination of substrate and topography not found elsewhere in Fiji. The impact of man on the dunes to date has been appreciable. Now the dunes are faced with complete destruction through mining. In the event of mining, two areas of vegetation should be left unmined, to provide seed sources for the eventual rehabilitation of the entire system. These contain a high proportion of indigenous species and several vegetation types. In addition, they are of dimensions sufficient to maintain viable populations of the main species of birds (and possible reptiles and amphibians). It has been recommended that these two areas be allotted the status of Nature Reserves.

B. Exploitation and Reclamation of Mangroves

The extensive mangrove forests are sporadically exploited for domestic uses such as house poles, firewood, and for tannin production. This domestic usage does not appear to make much impact on the mangrove ecosystem under the existing laws.

Commercial exploitation is done on a limited basis to supply fuel to bakeries, boilers, copra kilns, domestic and commercial users, and for charcoal production. These types of exploitation are done under the authority of a licence given by the Forestry Department who also controls the cutting operations. In 1977 the official total removed was 1855 m<sup>3</sup> firewood, and 2850 m<sup>3</sup> poles. It is estimated that out of the total wood volume in the mangrove forests of 4,750,000 m<sup>3</sup> or 1.9% per annum could be removed.

Of more pervasive impact on the mangrove ecosystem is reclamation for commercial, agricultural, industrial and hotel purposes. Area-wise, this reclamation has varied from a fraction of a hectare to several hectares. Reclamation of mangroves destroys the traditional fishing grounds of the indigenous people and results in the permanent loss of an essential part of the food chain of oceanic fish. The country's economy may dictate the complete devastation of tracts of mangrove forests, but there is little doubt that such destruction displaces living organisms, including man, which rely on such an ecosystem to supply their food.

Aquaculture on ponds built in mangrove areas has become a possibility, after considerable research into fish/prawn culture on an experimental area of 344 hectares in North-west Viti Levu. A Government joint venture will undertake commercial fish/prawn farming and private investors have shown interest. However, it is unlikely that fish/prawn farming will develop into an extensive industry that will require large-scale reclamation of mangroves.

Prior to 1975, all mangrove areas outside the town and city limits were declared as forest reserves under the Forest Ordinance (Cap. 128).

In 1975, to ensure free access to the indigenous Fijians in exercise of their traditional fishing rights, all mangrove forests were dereserved. Such traditional use should not normally cause environmental concern, provided that fishing in these mangrove swamps does not become too commercialised.



EXAMPLES OF MAN'S IMPINGEMENT ON THE COASTAL ECOSYSTEM (Contd)C. Oil pollution

The increasing transportation of oil in Fiji waters and offshore exploration drilling are possible future sources of pollution.

Oil can have serious effects on shallow intertidal waters and mangrove areas. In order to combat present oil pollution, Act. No. 3 of 1974 amended the Harbour Ordinance (Cap. 160) by imposing heavy penalties for pollution of harbour and coastal waters. The Act aimed to deter not only discharge of oil at sea but also from places on land. Following the first meeting of the Interdepartmental Committee on Pollution in 1976, a circular was sent to local authorities to remind them of their existing powers over discharge of waste oil. The response to this circular has been disappointing.

D. Hotel and Tourism Development

The area of greatest tourism development in Fiji is the Coral Coast of South-eastern Viti Levu whose fringing reef has been discussed earlier in this paper. Here are located extensive beaches bound by fringing reefs easily accessible via the Queens Road which connects Suva and Nadi/Lautoka, the two major population centres of Viti Levu.

There are also numerous Fijian villages along this coast. There are no beach parks for the use of local residents, and thus no coastal fringe habitat has been modified for beach park purposes.

As a result, however, indiscriminate use has been the pattern. Most of the original beach forest has also been removed, and the remaining coastal vegetation has been subjected to cutting, burning, and trampling with associated trench modification or destruction by erosion.

The problem with tourism use is of a different nature. Almost every tourist developer will admit to being concerned about protecting the natural environment upon which his profits are based. However, with possibly few exceptions, the obligation to encourage tourists to respect the coastal ecosystem appears not to be strongly felt. The use of a guide on reef walks who may discourage tourists from collecting live specimens is encouraging, but there seems to be no additional controls over scavenging of reef animals.

The construction of hotels and associated facilities creates an even greater impact than tourist activities. Large hotels or resort developments such as the Pacific Harbour complex with its luxury villa development have completely changed the natural habitat from the foreshore to as much as one kilometre inland. In the Pacific Harbour case, considerable quantities of sediment carried from construction and excavation sites by Qaraniqio Creek have killed off coral in the small fringing reef near the mouth of the creek. The construction of such works as man-made islands, groynes, and dredging or blasting of boat channels or basins also results in the drastic alteration of the equilibrium between sea and shore and renders the coastline more vulnerable to erosion in times of tsunamis and storms. Likewise, changes in flow patterns and velocities causes changes in sedimentation patterns and the distribution of coastal organisms. An artificial island built on a reef flat offshore one resort hotel on the Coral Coast as a recreational facility has turned into an ideal habitat for the establishment of a mangrove community - certainly not a part of the resort development plan! It has been common practice of coastal hotels to destroy the foreshore dunes piled well above high water mark by storm waves and covered by thick vegetation. Having lost this natural protective

EXAMPLES OF MAN'S IMPINGEMENT ON THE COASTAL ECOSYSTEM (Contd)

barrier, such hotels become prone to inundation and battering from storm waves.

Where hotels discharge treated sewage waters into areas with limited circulation such as shallow bays, nutrient enrichment can result in explosive growth of bacterial and algal populations that may be counter-productive to marine fauna. The amounts of solid waste generated can be considerable. An annual figure of 22,400 metric tons was projected for one tourist development. Disposal was to be by dumping into a nearby mangrove ecosystem.

E. Fishing

The coastal waters of Fiji are exploited by commercial and subsistence fishermen who harvest an estimated 7,341 tonnes of fish and non-fish products worth approximately \$7.5 million annually, mainly for local markets.

500 commercial fishermen harvest 3,246 tonnes with simple netting and handling techniques, while the subsistence group utilizes traditional labour-intensive means to harvest the remaining 4,095 tonnes. The coastal areas bordering large densely-populated urban areas, especially those adjacent to river mouths, are heavily exploited and may be approaching optimal yields of fin fish. The remaining rural coastal areas are generally under-exploited. It is unlikely that coastal fishery will experience any capital intensive innovations in technology or a dramatic increase in numbers of commercial fishermen due to uncertainties in customary fishing rights. However, despite this constraint and the future development of distant, offshore fisheries, the coastal fishery will remain a major source of fish for local markets and a livelihood for at least the present number of local commercial fishermen.

F. Impacts emanating inland

Often actions remote from the coast have long term and dramatic effects on the coastal ecosystem.

Increased agricultural activity, even several miles inland, affects coastal waters through increased sediment loads, and the discharge of chemical fertilizers and weedicides brought down by stream and river waters. Extensive modification of the water flow of the Sigatoka and Rewa Rivers as a result of the Monasavu Hydro-electric scheme may reduce water flow, nutrient content, and sediment load normally reaching the coastal waters. Road construction for major highways such as the Suva/Nadi Highway contributes sediment loads to adjacent waters which eventually reach the coastal areas.

III. CURRENT AND FUTURE POLICIES ON DEVELOPMENT AND MANAGEMENT OF COASTAL ECOSYSTEMS

There is no doubt that coastal resources are important in Fiji.

In recognition of the special social, environmental, and economic importance of mangroves, pressure has been brought to bear on developers such that no extensive reclamation can be undertaken without a thorough survey of the mangrove resources. A comprehensive report on mangrove resource use and related policy is nearly complete.

The Government's Development Plan 7 states that particular care should be taken to ensure that toxic industrial wastes would not be disposed of in estuaries. This statement recognises the deleterious effects on public health and marine life even beyond the immediate

CURRENT AND FUTURE POLICIES ON DEVELOPMENT AND MANAGEMENT  
OF COASTAL ECOSYSTEMS (Contd)

area of such disposal. For example, baitfish species which is essential in the growing skipjack tuna fishing industry spend part of their life cycle in estuarine waters. In the wake of the world-wide recession since 1974, there have been few new waterside industrial developments, and no significant increase in river and coastal pollution has been obvious. It is the old industries, however, that continue to discharge pollutants into the Suva Harbour area, as borne out by preliminary data on heavy metal contents of samples from the harbour.

There are likely to be some coast-based development projects such as port development in the future. The possible environmental consequences of such developments have to be fully evaluated, before the projects are undertaken.

To ensure public access to the foreshore, Government policy as expressed in Development Plan 7 has been to require a recreational and access reserve extending inland for at least 30 metres from the main high water mark. Developments approved in the last two years have provided for such access.

Government has required careful consideration of the effects of dredging and reef blasting of coral reef communities before giving its approval. A company proposing large-scale coral sand dredging at Namuka Island near Suva has been required to submit an environmental impact study (EIS) before a foreshore lease would be considered. Such an EIS is beneficial to all concerned: the Government benefits from improved and more comprehensive information on which to base decisions, the company benefits from having a resource assessment which facilitates planning, and the public benefits from improved knowledge of both positive and negative impacts. It is particularly important to evaluate the impact of such a project on customary fishing rights. To reduce the maintenance cost of infrastructural foreshore developments such as jetties and sea walls, environmental advice has been sought on the siting of new jetties.

It is in the mining area that environmental considerations have come institutionalized in the planning process. Under the broad powers given him by the Mining Ordinance (Cap. 125), the Director of Mines, when issuing any mining tenement, has begun to require studies of the environment according to the scale of mining and the known commitment to mine by the company. Thus, if the group of companies working on the Namosi Copper Project opt to dispose of mine tailings offshore Southern Viti Levu, they will be required to undertake the appropriate oceanographic studies. They have, in fact, begun reconnaissance work.

There is no enabling legislation requiring environmental studies. However, Section 8 Part II Division 1, of the proposed Regulations under the Petroleum (Exploration and Exploitation) Act, 1978 may be taken as a first step in this direction. This requires the oil company to submit a contingency plan for an oil spill before drilling operations begin. The effectiveness of the contingency plan is dependent on a clear understanding of the environment of the drilling site and adjacent areas.

Urban land requirements will continue to the end of the century, and the rugged interior of the two main islands consequently impose heavy requirements on the narrow but rich and varied coastal areas. Town

CURRENT AND FUTURE POLICIES ON DEVELOPMENT AND MANAGEMENT  
OF COASTAL ECOSYSTEMS (Contd)

planning controls operate piecemeal at the moment but are attempting to cover various aspects of the coastal ecosystem such as shoreline protection and control of waste disposal.

(Discussion on the above paper appears at page 75 of Volume II of the proceedings)

KEYNOTE ADDRESS - MR. SIONE L. TONGILAVASUPERINTENDENT OF LANDS, SURVEYS & NATURAL RESOURCES, TONGA.DEVELOPMENT AND MANAGEMENT OF MARINE  
PARKS AND RESERVES IN THE KINGDOM OF TONGA

Life on a coral reef is a bewildering, wonderful biological organisation which uses the basic principles of biological communities on land. Each organism and animal is interdependent on each other in some form or other, and like all animals everywhere is ultimately dependant on plants. The basic plant life on the reef is the minute microscopic algae and plankton, on which the coral feeds. The animal life of reef communities is colourful diverse and almost endless in variety. The fascinating fishes are already well known to aquarists and reef lovers. These include the butterfly fish, angel fish, pipe fish, trigger fish, wrasses, groupers and scorpion fish. Crabs, shrimps and other crustaceans, all play their part in the scheme of things which no man can better. Worms, sea stars and sea urchins have their role and function.

Within the recent years fish watching has become a fascinating natural history occupation. With the availability of water tight masks, snorkels and flippers, the reefs are open to all to explore and to enjoy. There is some vestigial instinct in man which draws him to the sea. In less fortunate industrialised communities, the keeping of aquariums has become a big business. Thousands of exotic species are flown from tropical countries to the population centres of Europe and America. Many metropolitan cities have public and private aquariums which attract millions of visitors each year. People like to watch tropical fish whether in artificial aquarium conditions, or in their natural environments - it is a healthy, natural and uplifting occupation.

Man, is, of course, outside of his element in the sea. His intrusion on the reefs can be harmful if care is not taken. The indiscriminate removal of live coral and shells, and the wanton or accidental damage to live coral must be avoided. Only action backed by legislation can ensure the continuity of a priceless natural asset. The Kingdom of Tonga has possibly one of the last sea areas in the world, as yet, unspoiled by the mass intrusion of institutionalized tourism or industrialized development. Its reefs are wonderful lands of colourful coral, fish, unique and unspoiled.

How long this will last in these changing times will depend on the foresight and wisdom of the Kingdom's leaders. It is a great responsibility. One thing is irrevokable; once despoiled, the reefs and their communities are irreplaceable.

MARINE PARKS IN TONGA

The concept of establishing marine parks and reserves in the South Pacific is a relatively new one. However, Polynesians, until recently, have lived in harmony with their environment, and, in fact, their culture was founded on a closely cultivated relationship with nature. Conservation in a Western society context was unknown, yet the Polynesian culture embodied many features which conserved natural resources for the benefit of the community as a whole. Written conservation regulations were unknown and unnecessary.

It is only within recent years that an acquisitive monetised society is slowly replacing this traditional way of life. The concept of preserving reef and sea areas has been slow to develop and has, until the past decade or so, lagged behind the setting up of terrestrial parks and reserves.

MARINE PARKS IN TONGA (Contd)

The first terrestrial park, the famous Yellowstone Park in America, was established as long ago as 1872, but it was not until 1935 that the first marine park was established at Dry-Tortugas off the Carribean Coast.

In a subsistence based society, such as in the South Pacific, natural marine resources have been taken very much for granted. And why not? The resources have been seemingly inexhaustible, providing until the past few years, adequate supplies of fish and other aquatic edible organisms. There appeared to be no end, as the seas produced their annual bounty. Unfortunately, inevitable changes have taken place and the Kingdom is no longer isolated from the rest of the world. An ever increasing population has placed added pressure on the littoral and near reef resources. Reefs have become depleted as more intensive fishing and the introduction of new technology tries to meet increasing basic food requirements.

In recent years there has been an increasing awareness of the need to conserve areas in the seas, as well as on the land. The first problem was to identify areas which are representative of the marine ecosystem. Good selection is indeed the key to success. The selected areas must be accessible to visiting tourists; they must be relatively small and clearly defined; they must encompass, where possible, entire ecological units; they should have special interest features; regulations must be clearly identified and illustrated; and there must be concise laws and enforceable ones.

The Tongan Government has been foremost in enacting Legislation to protect its lagoons and reefs. The main lagoon on Tongatapu called Fanga'uta was declared a protected area in 1974. This is a 7,000 acre inland water area. Much of this lagoon is shallow with deep channels running through it. The western side is shallow with a small tidal variation of approximately one foot, consequently, water exchange is minimal. Peripheral housing has resulted, inevitably with an influx of effluent into the lagoon causing an unhealthy situation harmful to marine life. Under the Lagoon Protection Act, effluent discharge into the lagoon is now strictly controlled. Any effluent, drilling, dredging or cutting of mangrove trees is illegal within the boundaries of the reserve. The eastern portion of the lagoon is mainly estuarine in nature and serves an important nursery area for fish species which support the local subsistence fishery. Before the new act became law there were as many as 20 fish traps within this relatively small area. These took a steady toll of the immature grey mullet (Mugil cephalus) capturing them when they moved out of the lagoon thus effectively restricting recruitment back to the breeding stock.

Other important Marine organisms in the lagoon are two species of Penaeid prawns, Metapenaeus ensis, and Penaeus semsculcatus. The clam, Codakia sp., and the mussel, Modiolus agripeta, have suffered heavy exploitation as they are a much sought after source of food. The mangrove crab, Scylla serrata, is common and is also heavily exploited, and a species of scyphozoan jellyfish is often sold at the fish markets.

Three species of edible algae have been identified; Caulerpa racemosa, Caulerpa serratula and Caulerpa sertularoides. Juveniles of the following species of fish were found to be abundant, indicating the importance of the area as a nursery ground; the snappers, lethrinus and Lutjanus sp., the mullets, Mugilidea, and the parrot fishes, Scaridae. All species are important to the local subsistence fishermen, and needing protection at a critical stage in their life-cycle.

Since the lagoon was declared a protected area, there has been a noticeable improvement in the numbers of grey mullet (Mulgil Cephalus) and other species. Previously sceptical fishermen have commented favourably on the change. In 1975, the concept of creating further marine reserves and parks was brought to the attention of the government. The Fisheries Officer, Mr. William Wilkinson, was asked to select suitable areas. This was done, though 3 years elapsed before Legislation was enacted. For this, the credit must go to the Minister of Lands, Survey and Natural Resources, the Hon. Tuita, and the indefatigable Government Fisheries Officer, Bill Wilkinson, who were the driving force in getting the necessary legislation through all stages of government legislative machinery. Demarcation of the selected areas was surveyed by the Lands & Survey Department and the Marine Parks indeed became fact of life.

The five sites chosen are briefly detailed:-

(1) PANGAIMOTU ISLAND

Pangaimotu is within 10 minutes sail from Nuku'alofa, the capital of Tonga and its largest city. The Reef Park is bounded by four navigation beacons and the deeper seaward side is enriched by the Piha Passage. The coral is mainly staghorn coral, Acropora sp., and there are excellent examples of this common species. The colourful reef fish Chromis cueraleus, is abundant. Despite recent despoilage of the reef itself, other common reef fish to be seen are the sea wrasses- Holocentorus sp., the butterflyfish, Chaetodon, and the amusing clown fish, Amphrion sp. Pangaimotu is already heavily used by both Tongans and tourists. It is essential that this reef is protected.

(2) MONUAFFE REEF PARK

Monuaffe is 4 miles by sea from Nuku'alofa and is a small section of one of the most colourful reefs in the area. It is incredibly rich in all forms of coral and aquatic reef organisms. It is situated at the confluence of two main water movements which provides the essential nutrients for good reef growth. Every species of coral which grows in Tonga is represented at Monuaffe. The sand flats adjacent to the reef are inhabited by many species of snails - especially the cone snails, Conidae.

(3) MALINOA ISLAND AND REEF

This has historical interest. The six Tongans who made an unsuccessful attempt to assassinate the second Prime Minister of Tonga, the Reverend Shirley Baker, were executed here in 1835. The six graves are still clearly marked and attended to this day. Malinoa is 9 miles from Nuku'alofa and within easy reach of visitors on day excursions. Tides are strong on the fringing reef, and only strong swimmers should attempt to snorkel here. It is a marine delight which should be saved at all costs.

(4) HA'ATAFU BEACH

This is situated on the main Island of Tongatapu, approximately 14 miles S.W. from the capital Nuku'alofa. Despite damage to the hexa corals by the crown-of-thorns starfish, Acanthaster planci, the beach is one of the most attractive and the habitat for a great variety of butterfly fish, wrasses, the ubiquitous damselfishes as well as the clown fish and its associated sea anemone.

HA'ATAFU BEACH (Contd)

This beach is a visitor's 'must' and with care and good management could become one of Tonga's major tourist attractions.

(5) HAKAUMAMA'O REEF

In Tongan, Hakaumama'o means "the reef far away". Hakaumama'o is 12 miles north of the capital and unlike the other four parks, there is no land or island associated with this reef. Being unprotected by other islands, it is often exposed to strong currents and hurricane gales resulting in different coral formations and fish species. Being farthest from the centre of fishing activity, this reef is the least affected by man's activities and is practically in a pristine state.

That gives you some insights into the criteria used to select the marine parks of Tonga. Once they were chosen, the process of managing them began. An important development was a meeting held of the prominent fishermen of Tongatapu. For five days in a row, an announcement was read over the radio informing them of the meeting to be held with the Minister of Lands, the Hon. Tuita. Before the meeting, there was much scepticism on the part of the fisherman who feared an expanding bureaucracy and the loss of their means of livelihood. They came to my office to question why were these reserves necessary. In the meeting, Tuita explained in simple language how, like the chickens and pigs, some fish need to be allowed to grow to maturity and reproduce. If all the fish are harvested before they have a chance to spawn, soon there will be none left to catch. He then explained that the fishes needed a home, some place to be protected, to hide and to have their young ones. The reefs provide this home, the habitat of the fish. Destroying the reef is like destroying chicken nests or killing pregnant pigs. It just is not good management of your animals. The fishermen were assured that in a few years, their catches would be better than ever as the maturing progeny of the protected fish migrated out of the reserves. Once the fish left the reserve, they were fair game to any fisherman who caught them. As the meeting ended, the initial scepticism was gone. They know the reasoning behind the reserves and how the reserves would improve their economic situation.

The government had taken the time to explain itself and thereby gained the support and co-operation of a group who could be detrimental to the reserves.

Through the United States Peace Corps. and Smithsonian Environmental Program, a National Parks Supervisor was recruited. Tongans are now being trained in parks management and supervision and will hopefully within two years, assume the duties of directing the development of the parks system. The National Parks System of Tonga is fortunate in having close ties and good co-operation with the Ministry of Fisheries and the Tourist Board. The Government Fisheries Officer was responsible for the original idea of marine parks. The Tourist Board understands the importance of conservation and the role that national parks play in attracting tourists to Tonga, and supplementing the national income. They are willing to help us publicize the parks and the rules and regulations to Tongans and Tourist alike.

One of the first major projects is the erecting of appropriate markers at the boundaries of the parks both for information and enforcement purposes. All the five marine parks are required by the law to be fixed by permanent surveyed marks with geographic co-ordinates, and the resulting surveys to be mapped and delineated accordingly.



Next a survey of the flora and fauna inside of the boundaries of the parks must be undertaken to determine what exactly is being protected and to provide baseline data for future research and management decisions.

All the rules and regulations in the world are useless until they are accompanied by public education and understanding of the basic principles of conservation. The idea of national parks is new to Tonga, and therefore, we need to promote and publicize the reasons for the establishment of national parks through the broadcast media, both radio and newspaper. We have already talked to the Tonga Science Teachers Association and have assisted them in curriculum development. The National Parks Supervisor is a frequent guest lecturer in science classes in Tonga's High Schools. We could station rangers and policemen at each of the parks and still not adequately protect them. However, if the general public understands why Tonga has national parks and their importance to the future of Tonga, the parks can become a source of national pride especially in a very small country with limited natural resources. (Tonga has only 269 sq. miles of sea. In 1978, Tonga legislated and gazetted a 200 miles exclusive economic zone). All tourist literature will contain a brief explanation of the rules and regulations and the reasons behind them. Otherwise, tourists will be tempted to take home pieces of coral and live shells as souvenirs, causing the deterioration of what they came to Tonga to see.

And what of the future? Will this fine concept be maintained and the Parks managed and Regulations observed? It is sometimes easy to promulgate conservation regulations, but much more difficult to enforce them effectively. This particularly in a Pacific Island context when all natural resources have been free for all to utilise and enjoy. The Kingdom of Tonga has accepted the inevitability and, indeed, the challenge of change. The Marine environment has become more vulnerable with technological 'improvements' and increasing human activities. Unless effective action is taken now, the reefs will cease to provide their annual bounty, and the Pacific Islands will lose that greatest of all human attributes - self sufficiency.

(Due to logistic problems associated with the reprint of the map of Tongatapu Island, it is suggested you refer to the copy distributed at the Conference).

(Discussion on the above paper appears at page 79 of Volume II of the proceedings).

## RECOMMENDATION 1

PROGRESS IN THE ESTABLISHMENT OF NATIONAL PARKS AND RESERVES

In recognising the significant progress made in all aspects of nature conservation in the South Pacific region during the last four years, as recorded in the situation reports, particularly in

- The proclamation of additional national parks, marine parks and reserves
- The appointment and training of specialist staff
- The investigation and evaluation of the natural resources of both the land and the sea.

Commending the innovation displayed by many governments to meet the special nature conservation need of their countries and peoples.

Being encouraged by the delegates' pride in, and awareness of, the natural bounty and beauty of not only their own countries, but that of the region as a whole, and its importance and value to the world community.

The South Pacific Conference on National Parks and Reserves meeting in Sydney N.S.W., Australia, on 27th April, 1979.

Recommends that the government of the region expand their nature conservation programmes to accelerate the protection of natural and cultural assets to enhance the quality of life for both local and international communities and to provide for the needs of future generations.

Moved . . . . Hon. T. Tangoroa

Seconded . . . . Mr. S. Tongilava

Carried.

(Discussion on the Recommendations commences at page 114 of Volume II of the proceedings).

## RECOMMENDATION 2

NATIONAL PARK VALUES

Concerned that the values of national parks and equivalent reserves are not yet widely understood in the region.

The Second South Pacific Conference on National Parks and Reserves meeting in Sydney, N.S.W., Australia, on 27th April, 1979.

Reaffirms the importance of observing the high principles for selection and management expressed in the 1969 I.U.C.N. definition of national parks and equivalent reserves.

Commends the definition to governments as the standard to be aspired to -

And Affirms that a national park is a multi-purpose natural area which may also produce substantial economic and social benefits from compatible uses such as recreation, tourism, water production, scientific research, gene pool protection, as well as providing aesthetic and inspirational values.

Moved ..... Mr. N. Coad  
 Seconded ..... Mr. P. Murrell

Carried.

## RECOMMENDATION 3

REVIEW OF I.U.C.N. DEFINITIONS OF NATIONAL PARKS AND OTHER PROTECTED AREAS

Recalling recommendation No. 3 of the 1st conference held in Wellington, New Zealand on 27th February, 1975.

Recognising that national park status is not the only way in which natural values can be conserved and that other protective forms of status allow a variety of uses to an extent compatible with a determined level of nature conservation.

Recognising also that, despite the availability of other forms of protective status, some countries in this region are concerned that, with the existing criteria, none of their protected areas apparently qualify for inclusion in the United Nations list of National Parks and equivalent reserves because of the continued occupancy by man exercising traditional rights, including hunting and gathering or problems relating to customary land ownership.

Being advised that, within the South Pacific region, particularly those countries where people maintain their traditional lifestyle and culture, the vast majority of land is held strongly by customary owners.

The Second South Pacific Conference on National Parks and Reserves

meeting in Sydney, N.S.W., Australia, on 27th April, 1979.

Recommends that I.U.C.N. review the definitions of protected areas for nature conservation purposes with the view of respecting customary land ownership and of determining acceptable traditional use rights that can be accommodated without prejudicing the high principles and management standards espoused by the present definitions.

Moved ..... Hon. T. Tangaroa  
 Seconded ..... Mr. T. Richmond

CARRIED.

PROTECTION AND INTERPRETATION OF CULTURAL HERITAGE

The Second South Pacific Conference on National Parks and Reserves  
meeting in Sydney, New South Wales, Australia on 27th April, 1979.

Urges the governments of the region to place and render greater and important emphasis on restoring and maintaining traditional methods and customs which formerly enable communities to live in harmony within their natural environment and atmosphere.

Recommends that governments orient educational systems so as to emphasise and promote environmental and conservation objectives, and to give proper weight and absolute and full consideration to local culture and tradition.

And recommends further that appropriate traditional practices be revived, maintained, encouraged and featured as an important and fundamental element in the operation of reserved areas where such cultural activities were practised, or are still in existence today.

Moved ..... Hon. T. Tangaroa

Seconded ..... Mr. P. Cornish

CARRIED.

RECOMMENDATION 5

SOCIAL AND CULTURAL AREAS ON TRIBAL AND CUSTOMARY LANDS

Realizing the difficulty of acquiring Tribal land for this establishment of the National Parks and Reserves.

Recognising the need to conserve traditional uses, functions and values of Tribal lands.

Concerned at the urgent need to take appropriate steps to reserve these Traditional grounds from abuses and environmentally destructive developments.

The Second South Pacific Conference on National Parks and Reserves meeting in Sydney, New South Wales, Australia on April 27th, 1979.

Urges governments of the regions to join with the local people in protecting areas of social and cultural significance on behalf of the local people.

Recommends that governments give full supporting services and finances for the establishment, maintenance and improvements of these areas.

And recommends further that, in consultation with the local people, appropriate control be instituted over all activities in such parks and reserves to protect the areas and the public investment in them.

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| Moved    | ..... | Hon. T. Tangaroa |
| Seconded | ..... | Hon. P. Kakarya  |

CARRIED.

RECOMMENDATION 6

ISLAND NATIONAL PARKS AND RESERVES

Being aware of the importance for nature conservation in protecting a representative sample of significant islands in the South Pacific region.

Realising that changing land use pressures are leading to diminution of conservation values in some instances.

Convinced of the need to take action to conserve significant islands in the region.

Recommends that all nations of the region who are able to do so, establish island national parks and reserves to protect a representative sample of unique island animal and plant communities.

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| Moved    | ..... | Hon. T. Tangaroa |
| Seconded | ..... | Mr. M. Tioa      |

CARRIED.

## RECOMMENDATION 7

MARINE PARKS AND RESERVES

Recalling Recommendation 6 of the First South Pacific Conference on National Parks and Reserves concerning the establishment of marine national parks and reserves.

Being concerned that development, pollution and over-fishing are increasingly damaging coastal marine resources in some areas.

Noting the progress made by some countries in establishing marine parks and reserves in significant coral reef and lagoon areas, and the further proposals now under consideration.

Recognizing that suitable marine reserves may help to restore the reproductive potential of fish resources on which local fishermen depend.

The Second South Pacific Conference on National Parks and Reserves meeting in Sydney, New South Wales, Australia, on 27th April, 1979.

Urges all Governments of the region to take action to halt the continuing degradation of their coastal waters by pollution, overfishing, and other human activities.

And recommends that further efforts be made to ensure that viable examples of all coastal marine ecosystems within their country are conserved in appropriate marine parks and reserves.

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| Moved    | ..... | Mr. N. Coad      |
| Seconded | ..... | Hon. T. Tangaroa |

CARRIED.



RECOMMENDATION 8

CONSERVATION OF OCEANIC ECOSYSTEMS

Recognising that ecosystems of the open ocean contain resources such as pelagic fisheries of great economic importance.

Being concerned that some of these resources are being subject to increasingly heavy exploitation.

Noting that, with the establishment of 200 mile economic zones, large areas of open ocean are coming under the control of South Pacific countries and territories.

The Second South Pacific Conference on National Parks and Reserves meeting in Sydney, New South Wales, Australia, on 27 April, 1979.

Recommends that the countries and territories of the region, individually or through appropriate regional bodies, undertake studies to identify critical areas or habitats in the open ocean which are important to the reproduction and survival of exploited or threatened species.

And further recommends that areas so identified be protected through appropriate regulations or through the establishment of marine reserves.

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| Moved    | ..... | Hon. P. Kakarya  |
| Seconded | ..... | Hon. T. Tangaroa |

CARRIED.

RECOMMENDATION 9

PROTECTION OF WHALES AND OTHER CETACEANS

Recognising the growing public interest in the conservation of whales and other cetaceans.

Aware of the migratory nature of cetaceans, and therefore the need for co-operation between countries to ensure that efforts in cetacean conservation are successful.

Noting that many cetacean species occur in the oceans of the South Pacific.

The Second South Pacific Conference on National Parks and Reserves meeting in Sydney, N.S.W., Australia, on 27th April, 1979.

Recommends that the efforts of countries in the South Pacific to foster the conservation of whales and other cetaceans be continued.

And recommends further that research and surveys be developed to identify breeding areas with a view to establishing sanctuaries for whales and other cetaceans.

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| Moved    | ..... | Mr. P. Cornish   |
| Seconded | ..... | Hon. T. Tangaroa |

CARRIED.

RECOMMENDATION 10

CONVENTION ON CONSERVATION OF NATURE IN THE SOUTH PACIFIC REGION

Being informed that a Convention on Conservation of Nature in the South Pacific Region was concluded in Apia, Western Samoa in 1976.

Noting that this Convention has yet to achieve the necessary ratifications and accessions to come into force.

Recognizing that the Convention will facilitate the sharing of information and experience on national parks, and will encourage the identification and protection of endangered species, and the establishment of appropriate conservation areas.

The Second South Pacific Conference on National Parks and Reserves meeting in Sydney, New South Wales, Australia, on 27th April, 1979.

Urges that the signatory countries ratify the Convention, and that other eligible countries consider acceding to the Convention as soon as possible, so that it may come into force.

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| Moved    | ..... | Hon. T. Tangaroa |
| Seconded | ..... | Mr. N. Coad      |

CARRIED.

RECOMMENDATION 11

ENVIRONMENTAL MANAGEMENT

Recognising the importance of sound environmental management of all areas of a country to achieving the ultimate goal of conservation.

Being informed that the countries of the South Pacific region have approved the launching of a South Pacific Regional Environment Programme.

The Second South Pacific Conference on National Parks and Reserves meeting in Sydney, New South Wales, Australia, on 27th April, 1979.

Urges that all countries participate actively in the South Pacific Regional Environment Programme.

And recommends that conservation requirements and projects be incorporated whenever possible in national environmental programmes.

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| Moved    | ..... | Hon. T. Tangaroa |
| Seconded | ..... | Mr. P. Murrell   |

CARRIED.

RECOMMENDATION 12

PLANNING FOR NATIONAL PARKS AND RESERVES

Recognising the great diversity of ecosystems and natural biomes identified in the South Pacific.

Noting the importance of preserving representative samples of all ecosystems as a resource for present and future generations.

Being advised of regional land use planning systems now legislated by some governments and the apparent success of these regional planning processes to identify important nature conservation areas and to establish development controls in adjoining areas to create beneficial transition zones.

The Second South Pacific Conference on National Parks and Reserves meeting in Sydney, New South Wales, Australia, on 27th April, 1979.

Recommends that governments identify potential conservation areas incorporating examples of all the ecosystems found in their countries.

Urges that plans be made to give such areas appropriate national park or reserve status, giving priority to those areas under threats such as exploitation or development.

And encourages the expanded use and refinement of the regional land use planning systems currently legislated and practised, to increase the viability and value of nature conservation areas and to avoid incompatible development which may present the future with conflicts which, if not irreconcilable, are often both complex and expensive to reconcile.

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| Moved    | ..... | Hon. T. Tangaroa |
| Seconded | ..... | Mr. T. Richmond  |

CARRIED.

COMMUNITY AWARENESS AND EDUCATION

Recognising the dependence of the success of nature conservation on the appreciation and support of the community.

Understanding the need to create an awareness of the dependence of man on the maintenance of viable and productive natural systems and the conservation action necessary to achieve the most effective balance both for the present and the future.

Aware that the long term benefits of nature conservation are often less obvious than some short term exploitative gains.

Being advised of the broadening and diversity of programmes to inform and educate on nature conservation values such as

- school education programmes especially environmental field studies.
- interpretation programmes of increasing diversity in parks and reserves.
- publications with effective presentation and wide distribution.
- use of the full range of communication media, e.g. the long-playing record recently produced by the Queensland National Parks and Wildlife Service.

The Second South Pacific Conference on National Parks and Reserves meeting in Sydney, New South Wales, Australia, on 27th April, 1979.

Recommends that the governments of the region be extremely conscious of the need for information and education concerning nature conservation and, in expanding existing programmes, investigate and evaluate the applicability of the diverse methods already in practice.

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| Moved    | ..... | Hon. T. Tangaroa |
| Seconded | ..... | Mr. D. Saunders  |

CARRIED.

RECOMMENDATION 14

TRAINING OF STAFF TO MANAGE NATIONAL PARKS AND RESERVES

Recognising the achievements made by countries who have facilitated training programmes and are now using professional staff in the development and promotion of national parks and reserves.

The Second South Pacific Conference on National Parks and Reserves meeting in Sydney, New South Wales, Australia, on 27th April, 1979.

Recommends that governments institute or increase training programmes to provide qualified staff for the management of nature conservation areas taking advantage of the increased training facilities available within the region.

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| Moved    | ..... | Hon. P. Kakarya  |
| Seconded | ..... | Hon. T. Tangaroa |

CARRIED.

RECOMMENDATION 15

FUTURE CONFERENCES

Realizing the outstanding value of the two meetings already held, in encouraging the establishment of national parks and reserves in the region, and in providing a forum for the exchange of views and information and for developing proposals for mutual co-operation in the region.

Recognizing that this second conference has been gratified at the practical results which have arisen out of the first conference.

The Second South Pacific Conference on National Parks and Reserves meeting in Sydney, New South Wales, Australia, on 27th April, 1979.

Recommends that further meetings in this series take place, and that the Third Conference be held in 1983, and

Recommends further that the third conference be held within a Pacific Islands country or group of countries, and that developed countries of the Pacific and international organisations operating in the region be urged to assist financially and in any other way necessary to enable the conference to be so located.

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| Moved    | ..... | Dr. B. Pratt     |
| Seconded | ..... | Hon. T. Tangaroa |

CARRIED.



ADDRESSES OF DELEGATES TO SECOND SOUTH PACIFIC  
CONFERENCE ON NATIONAL PARKS AND RESERVES

---

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Mr. G. Martin,  
Northern Regional Superintendent, N.S.W.,  
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Mr. J. Patterson,  
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Sen. The Hon. J. J. Webster,  
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Mr. D. Daley,  
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Sen. The Hon. J. J. Webster,  
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The Hon. Ishwari Bajpai,  
Minister for Social Welfare,  
Ministry of Social Welfare,  
New Government Buildings,  
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FIJI.

Mr. Konisi Yabaki,  
Deputy Conservator of Forests,

Mr. Maco Tevane,  
Member of Council of Government,  
Minister for Education, Culture,  
Sports and Youth,  
Taunua, Papeete, Tahiti,  
FRENCH POLYNESIA.

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Dr. Martin Garnett,  
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Department of Natural Resource  
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Mr. Tekiera Mwemwenikeaki,  
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